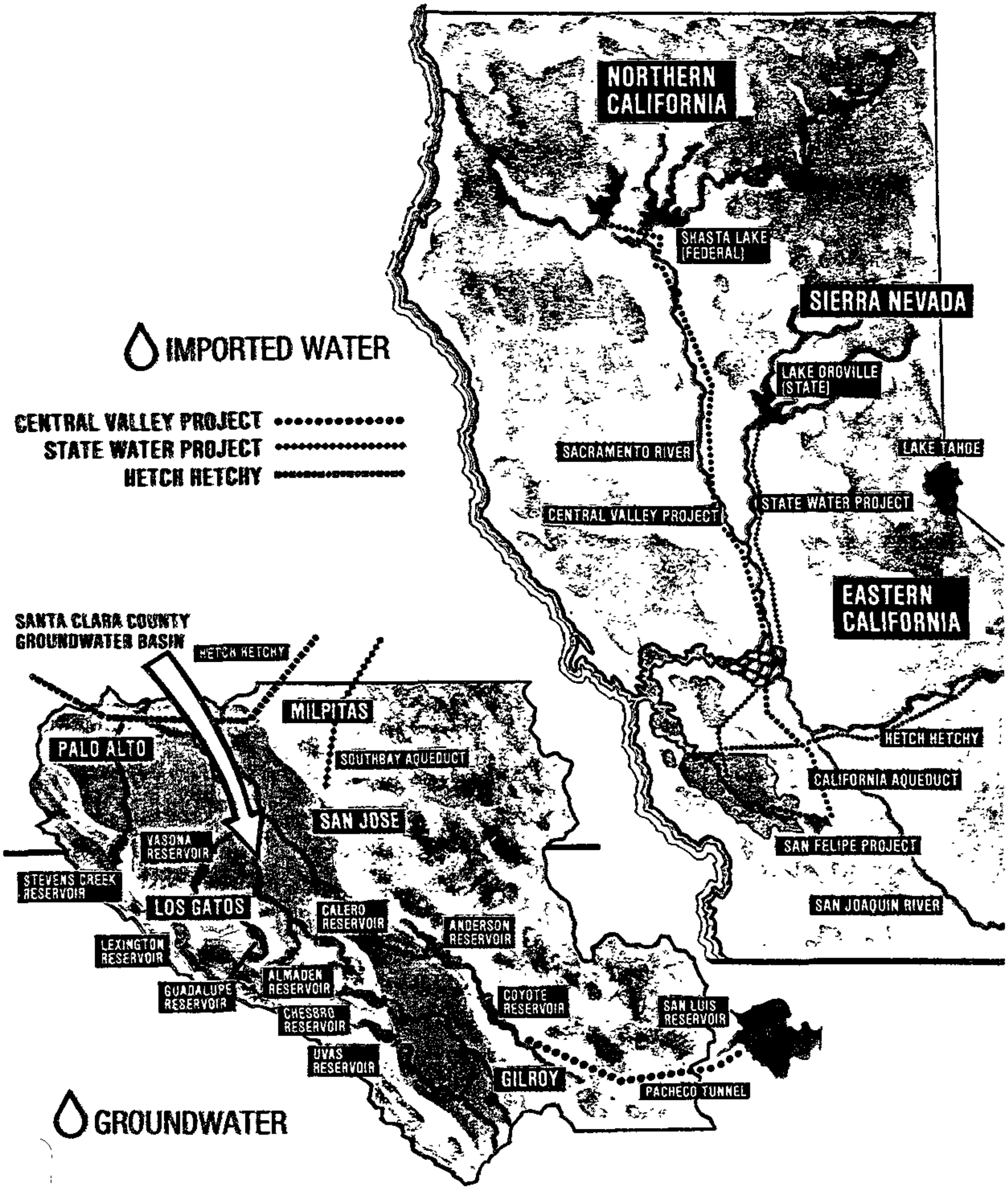
URBAN WATER MANAGEMENT PLAN

SANTA CLARA VALLEY WATER DISTRICT



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URBAN WATER MANAGEMENT PLAN
SANTA CLARA VALLEY WATER DISTRICT

PREPARED BY

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DISTRICT BOARD OF DIRECTORS

JOE PANDIT	District 1
PATRICK T. FERRARO	District 2
ROBERT W. GROSS, VICE CHAIRMAN	District 3
JOE DONOHUE	District 4
JAMES J. LENIHAN	District 5
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CHAPTER 1
INTRODUCTION

Urban Water Management Planning Act

This report was prepared in response to the Urban Water Management Planning Act (Water Code Division 6, Part 2.6, Sections 10610 through 10656). The Act was adopted by the State Legislature, approved by the Governor and became effective on January 1, 1984. The Act originally had a termination date of January 1, 1991, but subsequent legislation, effective July 19, 1990, deleted this termination date thereby imposing a state-mandated local program indefinitely. The original legislation (AB797) and its modifying legislation (AB2661) are included in Appendix 1.

The Act requires that "every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet annually...prepare and adopt...an urban water management plan containing the prescribed elements." This plan is to be filed with the Department of Water Resources.

The Santa Clara Valley Water District (District) is not legally required to prepare an Urban Water Management Plan since the District is a wholesale, rather than a retail, supplier of water. However, the District prepared an initial plan in November 1985 for both District and regional water supply planning purposes. This plan represents a revision and expansion of the initial 1985 plan.

The District's Urban Water Management Plan includes an overview of District facilities and operations, as well as a description of local water conservation and management activities. The District currently conducts its water conservation activities in cooperation with its retailers. This report does not, however, include a description of retailer conservation activities, since each retailer will prepare a similar plan.

Santa Clara Valley Water District

Agency Formation and Purpose

The District was originally established in 1951 as the Santa Clara County Flood Control and Water Conservation District by special act of the State Legislature. It merged with the Santa Clara Valley Water Conservation District in 1968, and in 1974 changed its name to the Santa Clara Valley Water District. In December 1987, the Santa Clara Valley Water District was merged with the Gavilan Water Conservation District, which owned and operated two local reservoirs and conducted water supply activities in the southern part of the County. The District's purposes are to reduce flood hazards, conserve local water resources, and provide an adequate water supply for all of Santa Clara County.

The District is governed by a Board of Directors consisting of five persons elected from supervisorial districts and two appointed at large by the County Board of Supervisors. In addition, the District meets regularly with a number of advisory groups, including the Santa Clara County Water Commission, the Agricultural Water Advisory Committee, the Landscape Advisory Committee, five

Flood Control Zone Advisory Committees, the Retail Water Agencies and its Water Supply and Groundwater Subcommittees, and others.

The District conserves, imports, treats and recharges water in order to provide a wholesale water supply to its retail water agencies. The District's facilities to store, treat and distribute water are shown in Figure 1.

The District is organized into eight major Departments, including General Manager, Clerk of the Board, Operations and Water Quality, Water Supply, Flood Control, Finance, Administrative Services, and Maintenance. Management and staff currently includes 531 employees. In fiscal-year 1988-89, District revenues totaled over $132 million from property taxes, flood control benefit assessments, water charges, interest, grants, and other sources.

Service Area Description

The District has the same boundaries as Santa Clara County and covers about 1300 square miles, including the Santa Clara Valley from San Francisco Bay south to the Pajaro River, and portions of the Diablo Range and Santa Cruz Mountains. Most of the development and water use occurs in the 350 square mile valley floor. Streams in the District include the Pajaro River, Guadalupe River, Coyote Creek, Llagas Creek, Uvas Creek and Los Gatos Creek. The Valley's climate is characterized by warm, dry summers and mild, wet winters. Average annual precipitation ranges from 14 inches on the valley floor in San Jose, to 45 inches along the crest of the Santa Cruz Mountains.

The service areas of the District's retail water agencies and their sources of supply are shown in Figure 2. The populations and 1990 water use of each retailer are shown in Table 1.

The population of the District has increased from 605,000 in 1960 to over 1.4 million in 1990. The assessed valuation has grown from $1.0 billion in 1960 to about $91.3 billion in 1990.

District Water Supply Management Goal

The District's overall water supply management goal is to provide water in sufficient quantity and quality to meet the current and future needs of Santa Clara County. This goal includes maximizing the efficient, appropriate use and reuse of water, while minimizing costs, environmental impacts, and other undesirable effects.

In order to achieve its water supply goal, the District carries out numerous ongoing activities. These activities include: (1) securing adequate local and imported sources of supply; (2) protecting the quality of surface and groundwater supplies; (3) providing adequate water treatment, distribution and storage systems to meet water use needs; (4) operating and maintaining the water treatment, distribution and storage systems to provide efficient, uninterrupted service; and (5) promoting the efficient, appropriate, cost-effective use and reuse of local and imported water supplies.

Many of these activities are the subject of this Urban Water Management Plan. The legislation mandates that specific water supply planning analyses be done, and specific alternatives be addressed. These mandated analyses and alternatives are organized and discussed in the context of the District's overall water supply management program.

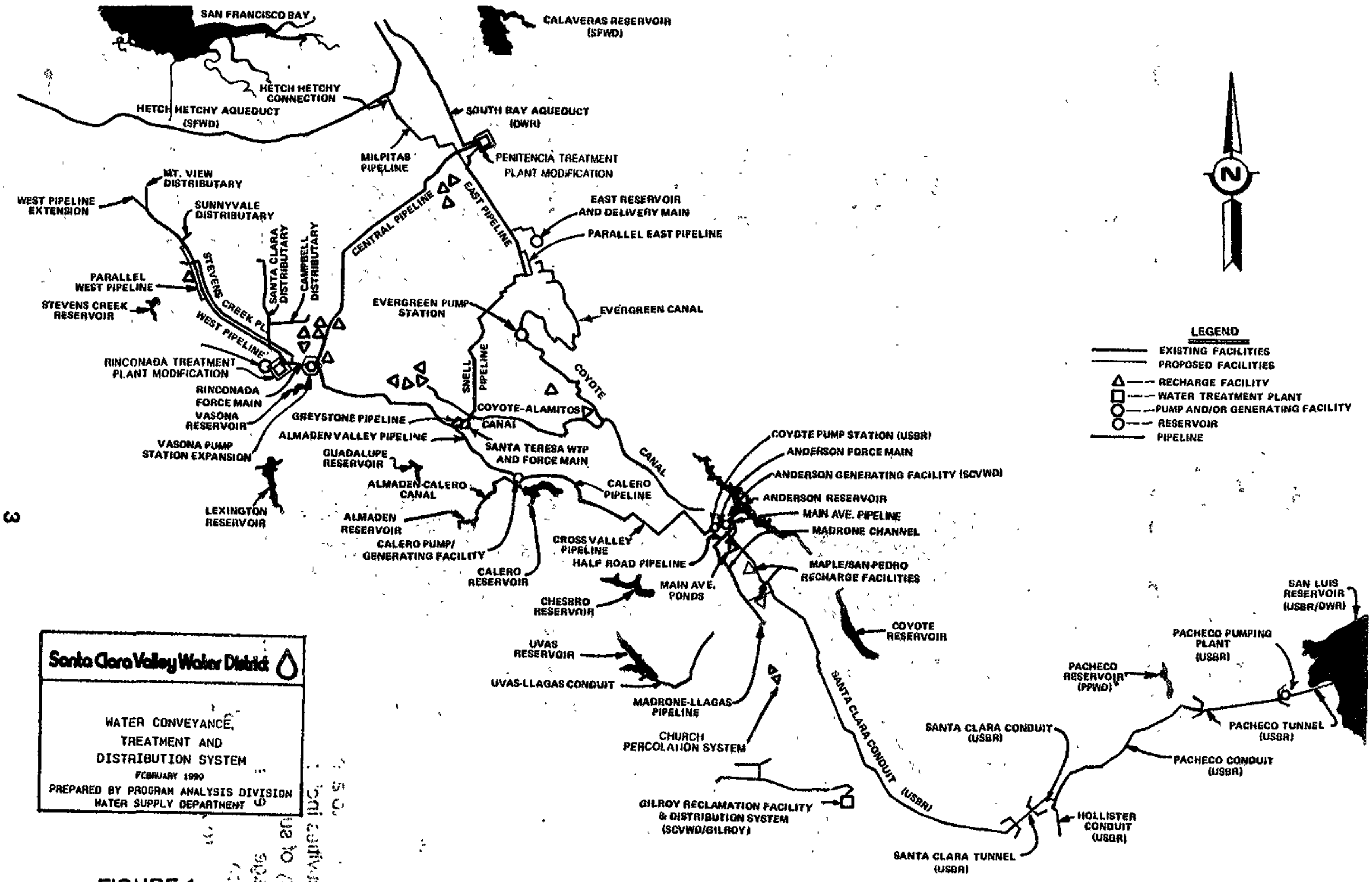

SAN FRANCISCO BAY
CALAVERAS RESERVOIR (SFWD)
HETCH HETCHY CONNECTION
HETCH HETCHY AQUEDUCT (SFWD)
SOUTH BAY AQUEDUCT (DWR)
MILPITAS PIPELINE
PENITENCIA TREATMENT PLANT MODIFICATION
MT. VIEW DISTRIBUTARY
WEST PIPELINE EXTENSION
SUNNYVALE DISTRIBUTARY
CENTRAL PIPELINE
EAST PIPELINE
EAST RESERVOIR AND DELIVERY MAIN
PARALLEL EAST PIPELINE
SANTA CLARA DISTRIBUTARY
CAMPBELL DISTRIBUTARY
STEVENS CREEK PL
PARALLEL WEST PIPELINE
STEVENS CREEK RESERVOIR
WEST PIPELINE
EVERGREEN PUMP STATION
EVERGREEN CANAL
RINCONADA TREATMENT PLANT MODIFICATION
RINCONADA FORCE MAIN
VASONA RESERVOIR
VASONA PUMP STATION EXPANSION
SNELL PIPELINE
COYOTE
COYOTE-ALAMITOS CANAL
GREYSTONE PIPELINE
ALMADEN VALLEY PIPELINE
SANTA TERESA WTP AND FORCE MAIN
GUADALUPE RESERVOIR
ALMADEN-CALERO CANAL
CANAL
CALERO PIPELINE
LEXINGTON RESERVOIR
ALMADEN RESERVOIR
CALERO PUMP/ GENERATING FACILITY
CALERO RESERVOIR
CROSS VALLEY PIPELINE
HALF ROAD PIPELINE
MAIN AVE. PONDS
CHESBRO RESERVOIR
UVAS RESERVOIR
UVAS-LLAGAS CONDUIT
MADRONE-LLAGAS PIPELINE
CHURCH PERCOLATION SYSTEM
GILROY RECLAMATION FACILITY & DISTRIBUTION SYSTEM (SCVWD/GILROY)
COYOTE PUMP STATION (USBR)
ANDERSON FORCE MAIN
ANDERSON GENERATING FACILITY (SCVWD)
ANDERSON RESERVOIR
MAIN AVE. PIPELINE
MADRONE CHANNEL
MAPLE/SAN PEDRO RECHARGE FACILITIES
COYOTE RESERVOIR
SANTA CLARA CONDUIT (USBR)
SAN LUIS RESERVOIR (USBR/DWR)
PACHECO PUMPING PLANT (USBR)
PACHECO RESERVOIR (PPWD)
PACHECO TUNNEL (USBR)
SANTA CLARA CONDUIT (USBR)
PACHECO CONDUIT (USBR)
HOLLISTER CONDUIT (USBR)
SANTA CLARA TUNNEL (USBR)
N
LEGEND
EXISTING FACILITIES
PROPOSED FACILITIES
RECHARGE FACILITY
WATER TREATMENT PLANT
PUMP AND/OR GENERATING FACILITY
RESERVOIR
PIPELINE
Santa Clara Valley Water District
WATER CONVEYANCE, TREATMENT AND DISTRIBUTION SYSTEM
FEBRUARY 1990
PREPARED BY PROGRAM ANALYSIS DIVISION
WATER SUPPLY DEPARTMENT

FIGURE 1

TABLE 1

WATER RETAILERS

SANTA CLARA COUNTY

Name	1990 Use* (AC/FT)
CALIFORNIA WATER SERVICE COMPANY	9,129
CITY OF CUPERTINO	1,966
CITY OF GILROY	4,478
GREAT OAKS WATER COMPANY	8,022
CITY OF MILPITAS	7,106
CITY OF MOUNTAIN VIEW	10,522
CITY OF MORGAN HILL	3,331
CITY OF PALO ALTO	10,533
PURISSIMA HILLS WATER DISTRICT	1,435
CITY OF SAN JOSE	9,579
SAN JOSE WATER COMPANY	97,118
CITY OF SANTA CLARA	18,851
CITY OF SUNNYVALE	17,968
OTHERS	4,804
TOTAL	204,842

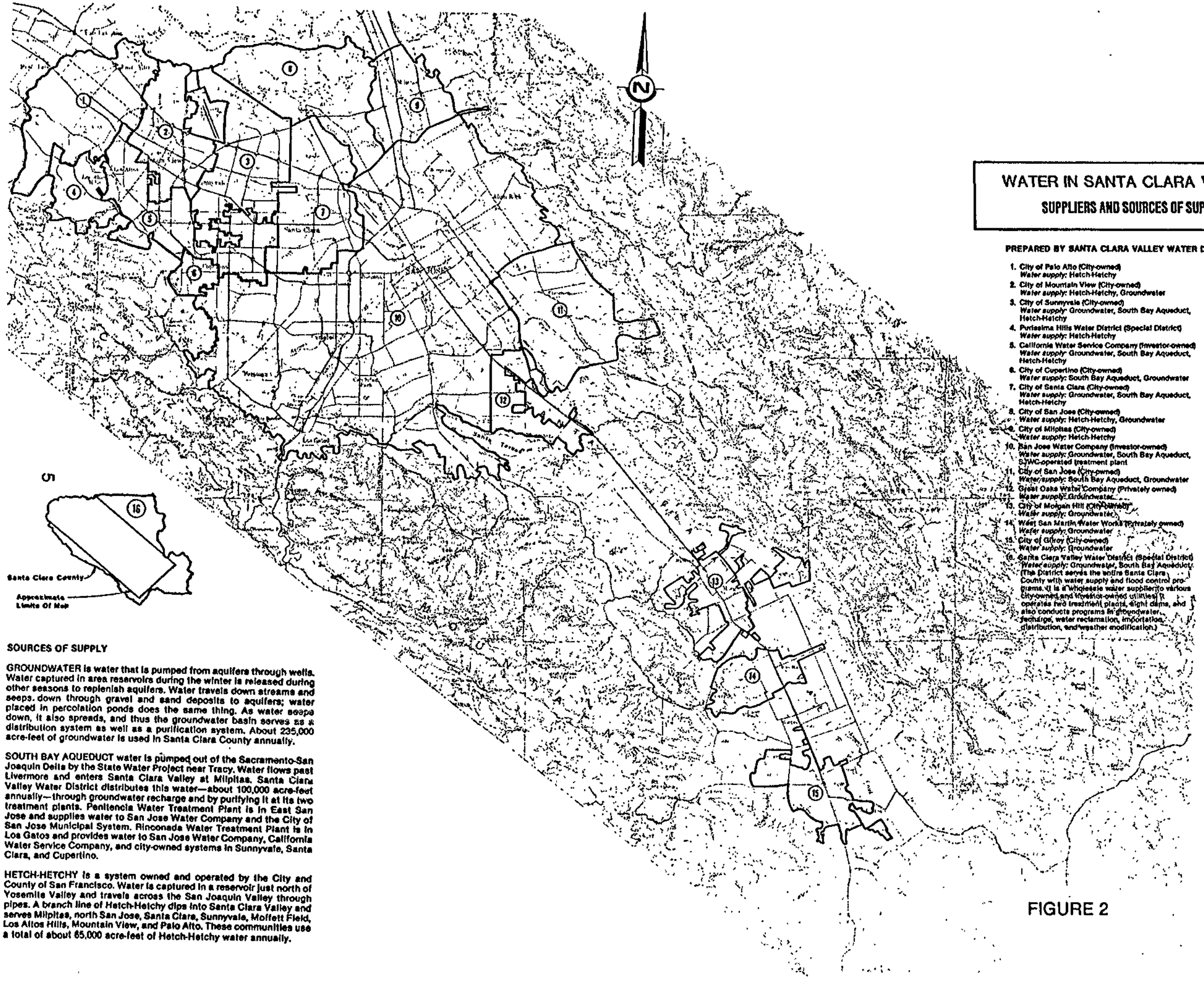
* As of October 31,1990

WATER IN SANTA CLARA VALLEY

SUPPLIERS AND SOURCES OF SUPPLY

PREPARED BY SANTA CLARA VALLEY WATER DISTRICT, 1984

1. City of Palo Alto (City-owned)
   Water supply: Hetch-Hetchy
2. City of Mountain View (City-owned)
   Water supply: Hetch-Hetchy, Groundwater
3. City of Sunnyvale (City-owned)
   Water supply: Groundwater, South Bay Aqueduct, Hetch-Hetchy
4. Purissima Hills Water District (Special District)
   Water supply: Hetch-Hetchy
5. California Water Service Company (Investor-owned)
   Water supply: Groundwater, South Bay Aqueduct, Hetch-Hetchy
6. City of Cupertino (City-owned)
   Water supply: South Bay Aqueduct, Groundwater
7. City of Santa Clara (City-owned)
   Water supply: Groundwater, South Bay Aqueduct, Hetch-Hetchy
8. City of San Jose (City-owned)
   Water supply: Hetch-Hetchy, Groundwater
9. City of Milpitas (City-owned)
   Water supply: Hetch-Hetchy
10. San Jose Water Company (Investor-owned)
    Water supply: Groundwater, South Bay Aqueduct, SJWC-operated treatment plant
11. City of San Jose (City-owned)
    Water supply: South Bay Aqueduct, Groundwater
12. Great Oaks Water Company (Privately owned)
    Water supply: Groundwater
13. City of Morgan Hill (City-owned)
    Water supply: Groundwater
14. West San Martin Water Works (Privately owned)
    Water supply: Groundwater
15. City of Gilroy (City-owned)
    Water supply: Groundwater
16. Santa Clara Valley Water District (Special District)
    Water supply: Groundwater, South Bay Aqueduct
    (The District serves the entire Santa Clara County with water supply and flood control programs. It is a wholesale water supplier to various city-owned and investor-owned utilities. It operates two treatment plants, eight dams, and also conducts programs in groundwater recharge, water reclamation, importation, distribution, and weather modification.)



SOURCES OF SUPPLY

GROUNDWATER is water that is pumped from aquifers through wells. Water captured in area reservoirs during the winter is released during other seasons to replenish aquifers. Water travels down streams and seeps down through gravel and sand deposits to aquifers; water placed in percolation ponds does the same thing. As water seeps down, it also spreads, and thus the groundwater basin serves as a distribution system as well as a purification system. About 235,000 acre-feet of groundwater is used in Santa Clara County annually.

SOUTH BAY AQUEDUCT water is pumped out of the Sacramento-San Joaquin Delta by the State Water Project near Tracy. Water flows past Livermore and enters Santa Clara Valley at Milpitas. Santa Clara Valley Water District distributes this water—about 100,000 acre-feet annually—through groundwater recharge and by purifying it at its two treatment plants. Penitencia Water Treatment Plant is in East San Jose and supplies water to San Jose Water Company and the City of San Jose Municipal System. Rinconada Water Treatment Plant is in Los Gatos and provides water to San Jose Water Company, California Water Service Company, and city-owned systems in Sunnyvale, Santa Clara, and Cupertino.

HETCH-HETCHY is a system owned and operated by the City and County of San Francisco. Water is captured in a reservoir just north of Yosemite Valley and travels across the San Joaquin Valley through pipes. A branch line of Hetch-Hetchy dips into Santa Clara Valley and serves Milpitas, north San Jose, Santa Clara, Sunnyvale, Moffett Field, Los Altos Hills, Mountain View, and Palo Alto. These communities use a total of about 65,000 acre-feet of Hetch-Hetchy water annually.

FIGURE 2

Organization of the 1990 Urban Water Management Plan

The following chapters contain discussions required by the Urban Water Management Planning Act:

Chapter 2:	Water Use
Chapter 3:	Water Supplies
Chapter 4:	Water Supply Deficiencies

Chapters 2 and 3 of this Urban Water Management Plan describe the water use in Santa Clara County and water supplies currently available. Chapter 4 discusses water supply deficiencies, both what is expected long-term, and what has been experienced recently in the current drought.

These chapters specifically satisfy Section 10631(a): past, current and projected water use, and Section 10631(e): frequency and magnitude of supply deficiencies.

Chapter 5: Water Quality

The Urban Water Management Planning Act does not require an analysis of water quality issues affecting supply. However, it is apparent that water quality issues will have an increasingly significant impact on both the availability of supplies, and on the cost of providing those supplies.

Chapter 6: Waste Water Reclamation

The Urban Water Management Planning Act requires that "a plan projecting future use which indicates a need for expanded or additional water supplies shall contain an evaluation of [a number of] alternatives". One of these (Section 10632(a)) is waste water reclamation. The District has participated in a number of waste water reclamation studies and projects, and continues to evaluate the feasibility of this alternative as a source of supply.

Chapter 7: Water Utility Operations and Maintenance

Other alternatives which must be evaluated relate to operation and maintenance of the water utility. These include management of water system pressures and peak demands (Section 10632(c)) and metering of all water uses (Section 10632(d)). Exchanges or transfers of water on a short-term or long-term basis (Section 10632(b)) are also discussed in this chapter. In addition, the District carries out water utility maintenance activities to ensure the reliability of the water supply system and prevent short-term deficiencies (Section 10631(e)). Among these maintenance activities are a corrosion control program, and a leak detection program.

Chapter 8: Current Water Conservation Measures

The focus of the Urban Water Management Planning Act is really on conservation and efficient use of water. This chapter describes existing District activities which promote these goals. These include providing public information and education, distributing conservation literature and plumbing retrofit kits, participating in conservation research projects, promoting efficient landscaping practices, formulating water conservation ordinances, and other activities. This chapter specifically satisfies Section 10631(b): identify conservation measures currently adopted.

Chapter 9: Expansion of Conservation Program

Section 10631(c),(d),(f) and (g), and Section 10632(e),(f) and (g) pertain to the analyses of alternative conservation measures, and the implementation plan and schedule for those that meet economic, environmental, and other selection criteria. These alternative measures include "consumer education, metering, water saving fixtures and appliances, lawn and garden irrigation techniques, and low water use landscaping", as well as "changes in pricing, rate structures and regulations".

Plan Development and Review Process

The District's Urban Water Management Plan was prepared by District staff. District staff have worked closely with retail water agencies, advisory committees and others, particularly in the last four years of the drought, to develop and implement water conservation and water management programs. A list of Contact Persons is included in Appendix 2.

A draft of the Plan was made available for public review in the office of the District's Clerk of the Board. Public notice of the Plan's availability for review was published in the San Jose Mercury News on December 6 and December 13, 1990. A public hearing of comments was conducted on December 18, 1990, and the Board passed a resolution recommending that the amended Plan be adopted and filed with the Department of Water Resources. A copy of the resolution is included in Appendix 3. The amended Urban Water Management Plan was finalized and submitted to the Department of Water Resources on December 31, 1990.

This process complies with Sections 10641(a), 10642, 10643, and 10644 of the Urban Water Management Planning Act.

CHAPTER 2
WATER USE

Population and Economy of Santa Clara County

Santa Clara County is home to a very dynamic economy and almost 1.5 million people. The County's economy is a crucial element in the Northern California Bay Area, providing approximately 30 percent of all the jobs in the region. It is also an important asset to the State of California and the nation. Nicknamed "Silicon Valley", with about one out of every four of the County's jobs in high technology, the area continues to attract fast growth industries. The area accounts for nearly one-quarter of the nation's high technology product exports. The County's current gross product is about 54 billion dollars.

As the Santa Clara County economy grows, the County's population has also grown. The estimate of the County's total population for 1990 is nearly 1.5 million. The Association of Bay Area Governments (ABAG) projects that this will rise to 1,658,000 by year 2005. Figure 3 shows the historic County population based on the Census data, and the projected population from ABAG.

County Water Demands

In 1987, total water use in Santa Clara County was approaching 400,000 acre-feet. Since then, voluntary and mandatory conservation due to drought conditions have reduced water use. Historic water use for the northern portion of the County (Zone W-2) is shown on Figure 4. Water use in Zone W-2 accounts for over 85 percent of the total reported water use in the County, and nearly all of the use in Zone W-2 is for municipal and industrial purposes.

In the southern portion of the County (Zone W-5), water use has been recorded since the 1987 merger with the Gavilan Water District. The total 1987-88 fiscal year production for Zone W-5 was reported as 45,000 acre-feet, 24,000 of that being for municipal and industrial use, and 21,000 for agricultural use.

The District has estimated the future water needs of this growing population and economy several times in the past. In the early 1970's, the District estimated that total County use by the year 2020 would be 546,000 acre-feet, as shown in Figure 5. This estimate assumed that future water savings would reduce 2020 demand by 66,000 acre-feet.

The District again evaluated future demand in the late 1970's using a forecasting method based on land use and local governments' projections for the ultimate use of vacant land. This method resulted in an estimate of water use for the year 2020 of 585,000 acre-feet. This projection is also shown in Figure 5.

The District is again in the process of compiling current County water use information and projecting future water needs. This current study should be completed in 1991.

FIGURE 3

TOTAL POPULATION

SANTA CLARA COUNTY

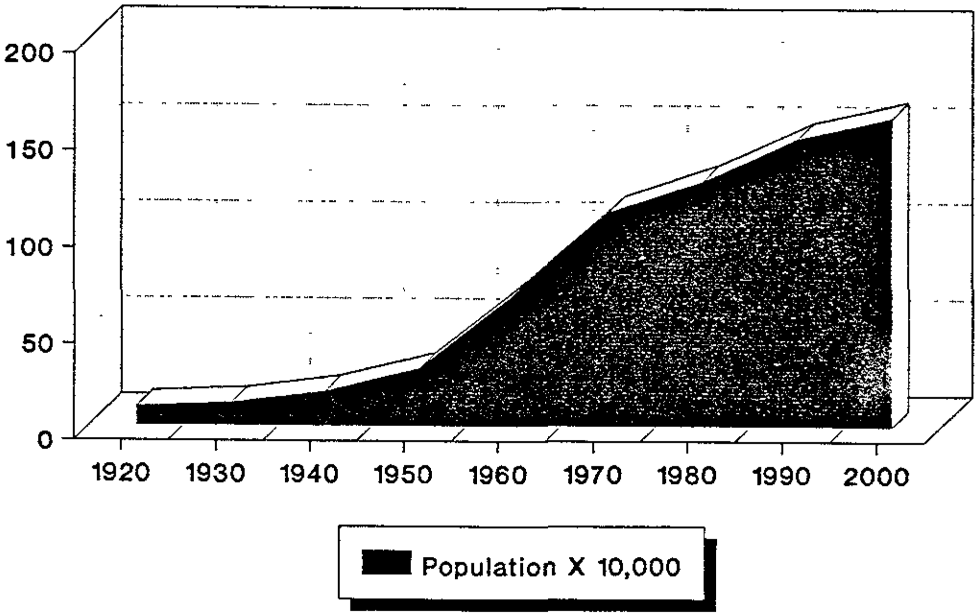


FIGURE 4

HISTORIC WATER USE

SANTA CLARA VALLEY (ZONE W-2)

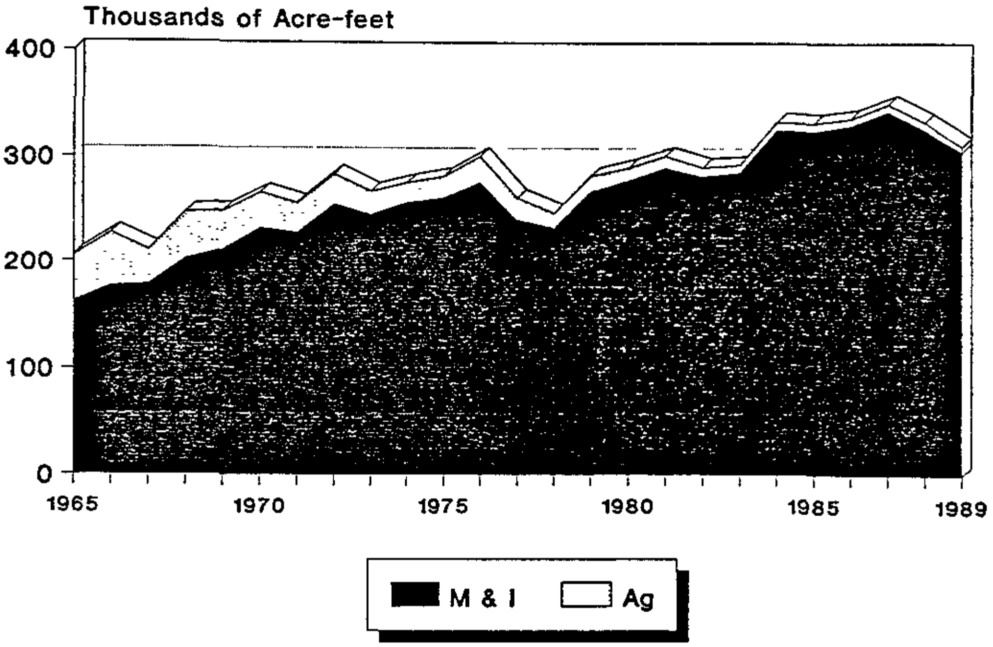
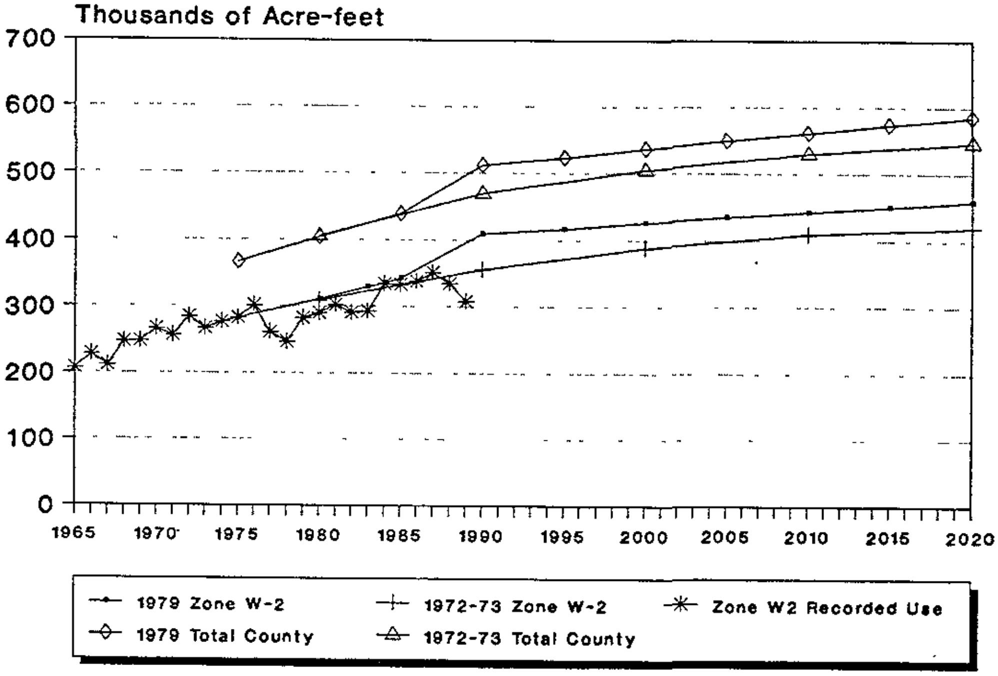


FIGURE 5

PROJECTED WATER DEMAND

SANTA CLARA COUNTY



CHAPTER 3
WATER SUPPLIES

Water supplies available to the District's service area are obtained from both local and imported sources. In an average water year, local groundwater, surface water and reclaimed wastewater constitute about half of the area's current water supplies.

Imported supplies from the State Water Project's South Bay Aqueduct, the Central Valley Project's San Felipe Division, and the San Francisco Water Department's Hetch-Hetchy Aqueduct provide on the average the remaining half of the County's needs.

The location of the District's conveyance, treatment and distribution system, and the three projects used to import water into the service area are shown in Figure 1.

Local Water Supplies

Major Streams and Reservoirs

Local surface water resources consist of runoff captured in ten District storage reservoirs and either held for direct use or recharged into the groundwater basin. These reservoirs, and two other local private reservoirs, have a storage capacity of 181,548 acre-feet (see Table 2). The yield from these watersheds varies widely between wet and dry years, and most District conservation reservoirs are operated with minimal carry-over storage.

Major Groundwater Subbasins

The groundwater basin in Santa Clara County is divided into three interconnected major subbasins: the Santa Clara Valley, the Coyote and the Llagas Subbasins. The location of these three subbasins is shown in Figure 6. In previous District planning studies, it was assumed that the three groundwater subbasins, the Santa Clara Valley, Coyote and Llagas, have maximum operating storages of 100,000 acre-feet, 50,000 acre-feet, and 75,000 acre-feet, respectively.

The Santa Clara Valley Subbasin in the northern part of the County is the largest, and serves most of the population of the County. The southern part of the County is served by the smaller Coyote and Llagas Subbasins. There are no surface water treatment plants in the southern part of the County, and the population relies entirely on groundwater for its supply. A minor amount of surface water and reclaimed water is delivered for agricultural and nonpotable purposes.

Groundwater normally accounts for over 50 percent of the water used in Santa Clara County. In 1987, groundwater accounted for 55 percent, or 216,000 acre-feet, of the water used in the County. Due to drought conservation efforts and the completion of a new water treatment plant, groundwater usage has been reduced in the last two years. It was about 42 percent of the usage in 1989 and has been about 46 percent of the usage to date in 1990.

The groundwater basin is recharged through natural percolation of rainfall and local stream runoff. In the major watersheds, runoff is retained in the conservation reservoirs and released into

TABLE 2

RESERVOIRS

SANTA CLARA COUNTY

Name	Capacity (Ac–Ft)	Water Stored	Date Constructed
CALERO	10,050	Local/Imported	1935
ALMADEN	1,780	Local	1935
GUADALUPE	3,740	Local	1935
ELSMAN*	6,100	Local	
ANDERSON	89,073	Local/Imported	1950
CHESBRO	8,086	Local	1950
COYOTE	22,925	Local	1936
LEXINGTON	19,834	Local	1952
STEVENS CREEK	3,465	Local	1935
UVAS	9,950	Local	1951
VASONA	410	Local	1935
PACHECO*	6,135	Local	
TOTALS	181,548		

* Not owned by SCVWD.

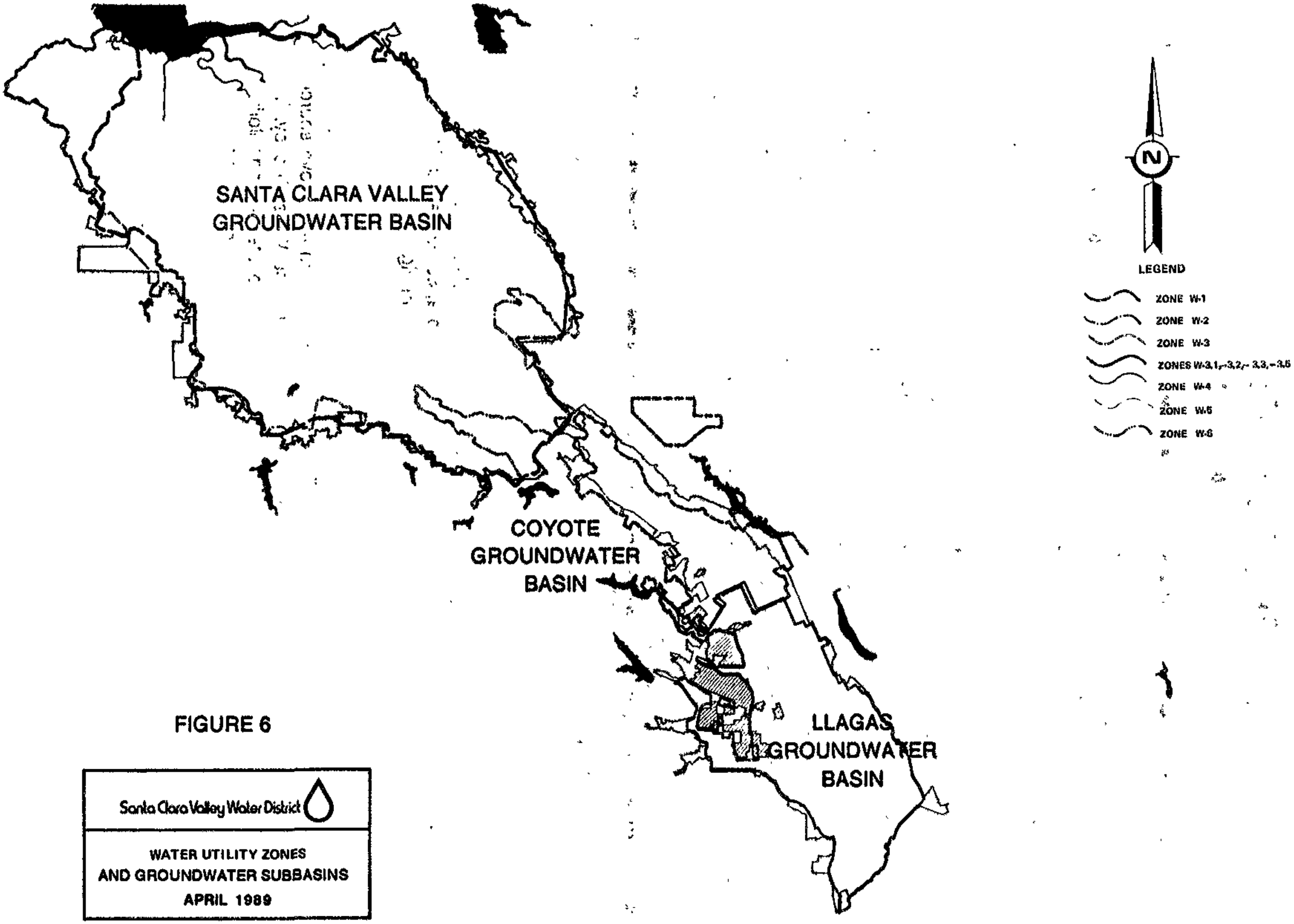


FIGURE 6

Santa Clara Valley Water District

WATER UTILITY ZONES
AND GROUNDWATER SUBBASINS
APRIL 1989

PREPARED BY WATER SUPPLY PLANNING

spreading basins or ponds for additional percolation into the groundwater basin. In addition, the District operates a raw water distribution system which delivers imported water into streams and ponds for groundwater recharge. Groundwater is then pumped by individuals and retail water agencies to meet local needs.

The long-term average annual groundwater yield from the major watersheds, and from direct rainfall and unregulated recharge, are summarized in Table 3.

Imported Water Supplies

State Water Project, South Bay Aqueduct

South Bay Aqueduct water has been imported to the northern part of Santa Clara County for both direct treatment and groundwater recharge since 1965. The District currently is entitled to receive 92,000 acre-feet, and the quantity will increase to a maximum of 100,000 acre-feet in 1994. The quantities received since the completion of the Aqueduct are shown in Figure 7. In 1989, about 25 percent of South Bay Aqueduct water was used to recharge the groundwater basin, and the remaining 75 percent was distributed to water retailers after being treated at one of the District's three treatment plants (Rinconada, Penitencia or Santa Teresa Water Treatment Plant).

Central Valley Project, San Felipe Division

The first deliveries of federal water to the District from the San Felipe Division of the Central Valley Project were received in June of 1987. The quantities received during the last three years are also shown in Figure 7. In 1989, about 68 percent of the San Felipe Project water was used to recharge the groundwater basin, and the remaining 32 percent was distributed to water retailers after treatment. Of the 68 percent recharged, two-thirds of it was recharged in the northern Santa Clara Valley Subbasin, and one-third was recharged in the southern Coyote and Llagas Subbasins.

City of San Francisco, Hetch-Hetchy Aqueduct

Although the District does not contract with the San Francisco Water Department to receive water from the Hetch Hetchy Project, the County normally receives over 70,000 acre-feet each year from this source. Deliveries are made directly to seven retail water agencies serving the cities of Palo Alto, Sunnyvale, Mountain View, Los Altos Hills, Los Altos, Santa Clara, San Jose and Milpitas in the northern part of the County. The quantities received are also shown in Figure 7.

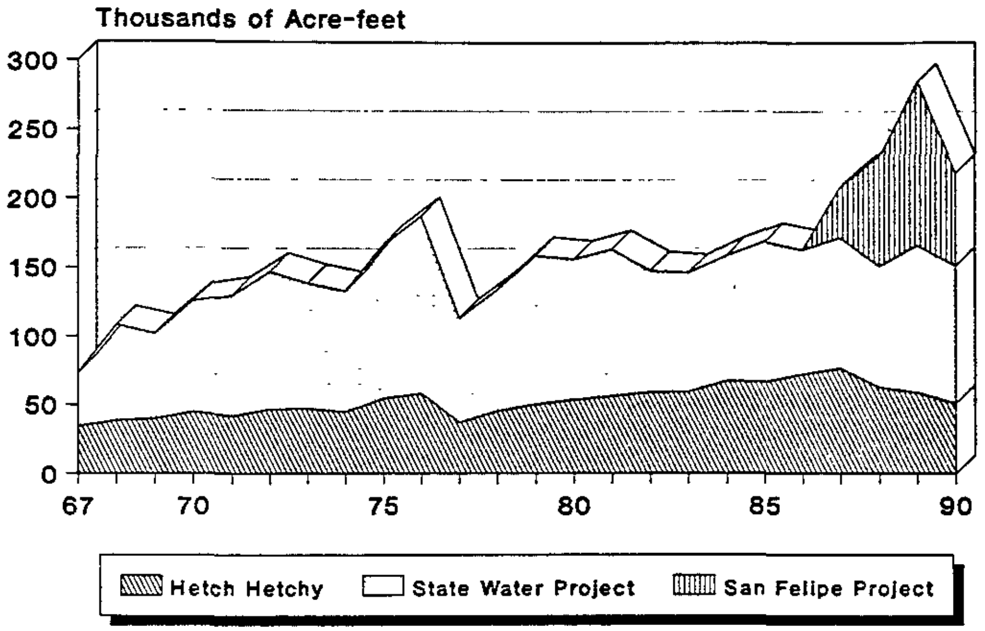
Other Imported Water Supplies

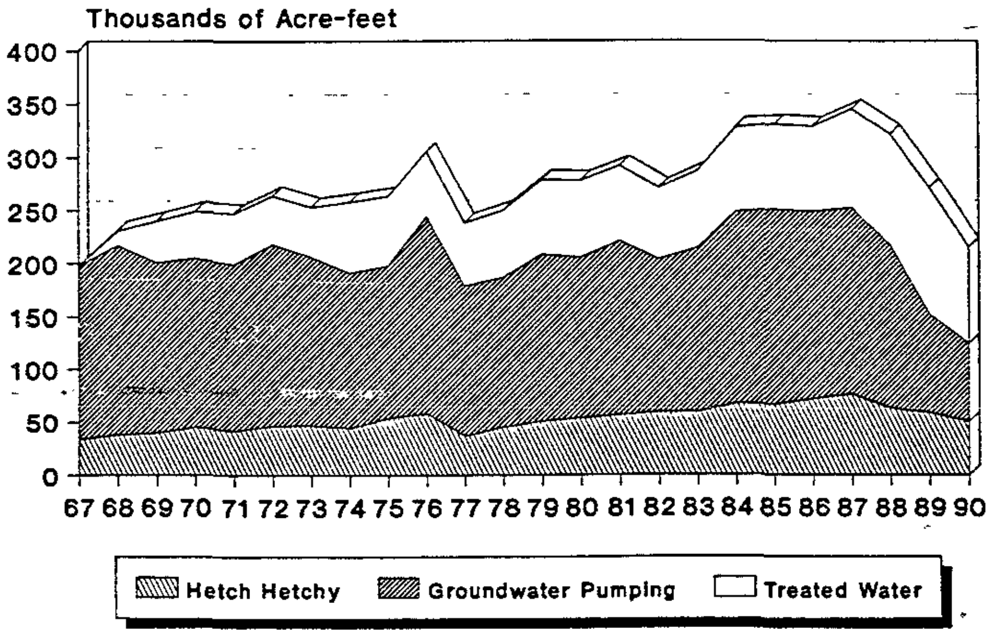
In 1989, due to anticipated reductions in entitlement supplies from the above sources, the District purchased 90,000 acre-feet of additional water from the Yuba County Water Agency. Included in the 90,000 acre-feet was 19,000 acre-feet of carriage water to accommodate fish and wildlife during transport through the Delta, so actual deliveries to Santa Clara County will total about 71,000 acre-feet. The District received about 17,000 acre-feet in 1989, and has received about 26,000 acre-feet so far in 1990. According to contract terms, the District must take delivery of the remaining 29,000 acre feet by the end of March 1991.

FIGURE 7

IMPORTED SUPPLIES AND WATER USE

SANTA CLARA COUNTY





NOTE: ZONE W-2 ONLY, AS OF OCTOBER 31, 1990

TABLE 3

LOCAL YIELD TO GROUNDWATER BASIN

SANTA CLARA COUNTY

Major Watersheds	Valley Subbasin	Coyote Subbasin	Llagas Subbasin
	Annual Yield in Acre-feet		
Stevens Creek	4910		
Regnart Creek	101		
Calabazas Creek	567		
Rodeo Creek	25		
Saratoga Creek	1955		
San Tomas Creek	1151		
Los Gatos Creek	21102		
Ross Creek	672		
Guadalupe Creek	5080		
Alamitos Creek	10435		
Silver Creek	299		
Thompson Creek	221		
Penitencia Creek	1994		
SJWC Upstream Diversions from Los Gatos & Saratoga	14653		
Coyote Creek	26348	10800	3300
Uvas Creek			12500
Llagas Creek			9600
Subtotal	89513	10800	25400
Natural Recharge From Direct Rainfall and Other Sources	58200	4400	45200
TOTAL	147713	15200	70600

All of the Yuba County water was delivered to Santa Clara County through the State's South Bay Aqueduct. Currently, the Warren Act does not allow the Bureau of Reclamation to transport non-project water through San Felipe Division facilities. Amendments to remove this limitation from the Warren Act are proceeding through the federal legislative process.

Water Supply Monitoring Programs

Surface Water Balance

A network of about 120 hydrologic gages in the County monitor streamflow, reservoir and rainfall. This information, together with metered data from the District's raw water distribution system, is used to prepare an annual surface water balance which estimates the runoff from local watersheds, as well as the quantities of local and imported water recharged to the groundwater basin. Evaporation losses from all facilities are calculated monthly. The surface water balance is used to fulfill water rights reporting requirements for the District's conservation reservoirs and offstream recharge ponds, as well as contractual reporting requirements for imported water.

Metering

District Resolution 87-26 specifies that wells which produce over a certain quantity of water be metered. In the northern portion of the County (Zone W-2) the production levels are 20 acre-feet or more of agricultural water, and 5 acre-feet or more of non-agricultural water. In the southern portion of the County (Zone W-5) the production levels are 40 acre-feet or more of agricultural water, and 10 acre-feet or more of non-agricultural water. All wells which meet the production criteria in Zone W-2 are metered.

Since the District's merger with Gavilan Water Conservation District in December 1987, the District has been registering wells in the southern part of the County and installing meters. It is estimated that about 400 wells meet the criteria to be metered, and the District's meter installation program should accomplish this by 1992. Currently, it is primarily the high production wells such as those operated by the Cities of Gilroy and Morgan Hill that are metered.

The District also operates a facility for meter testing and overhauling of both groundwater and surface water production meters. Meters are tested regularly based on volume measured or period of time since the last test. The program follows standard testing procedures and guidelines established by the American Water Works Association.

All retail agencies in the District's service area are 100 percent metered.

Groundwater Storage Monitoring

Prior to the importation and artificial recharge of water from the State Water Project in 1965, groundwater in the Santa Clara Valley Subbasin was being seriously overdrafted, as shown in Figure 8. Land surface subsidence, up to 13 feet in some areas of downtown San Jose, caused an enormous amount of damage associated with flood protection, drainage facilities, collapsed wells, and changes in grades of pipelines, streets and highways. Over 200 well casings collapsed. In U.S. Geological Survey Paper 497-F, J.F. Poland estimates that "the volume of subsidence(pore space reduction)...from 1912 to 1967 is about 800,000 acre-feet". The District monitors three subsurface compaction wells, as well as the depth-to-water in several hundred groundwater wells, in order to detect the possibility of such a serious overdraft situation again.

The depth to groundwater is monitored by the District monthly in about thirty wells, and quarterly in about 200 wells. Index wells for each of the three subbasins give an approximate indication of the trends in each subbasin and are shown in Figure 9. The depths, elevations, and changes in elevation are mapped quarterly, and storage in the major subbasins is calculated. A chart showing the cumulative change in storage over the past 26 years in the Santa Clara Valley Subbasin is shown in Figure 10.

SANTA CLARA VALLEY WATER DISTRICT

AVERAGE DEPTH TO WATER, LAND SUBSIDENCE, POPULATION

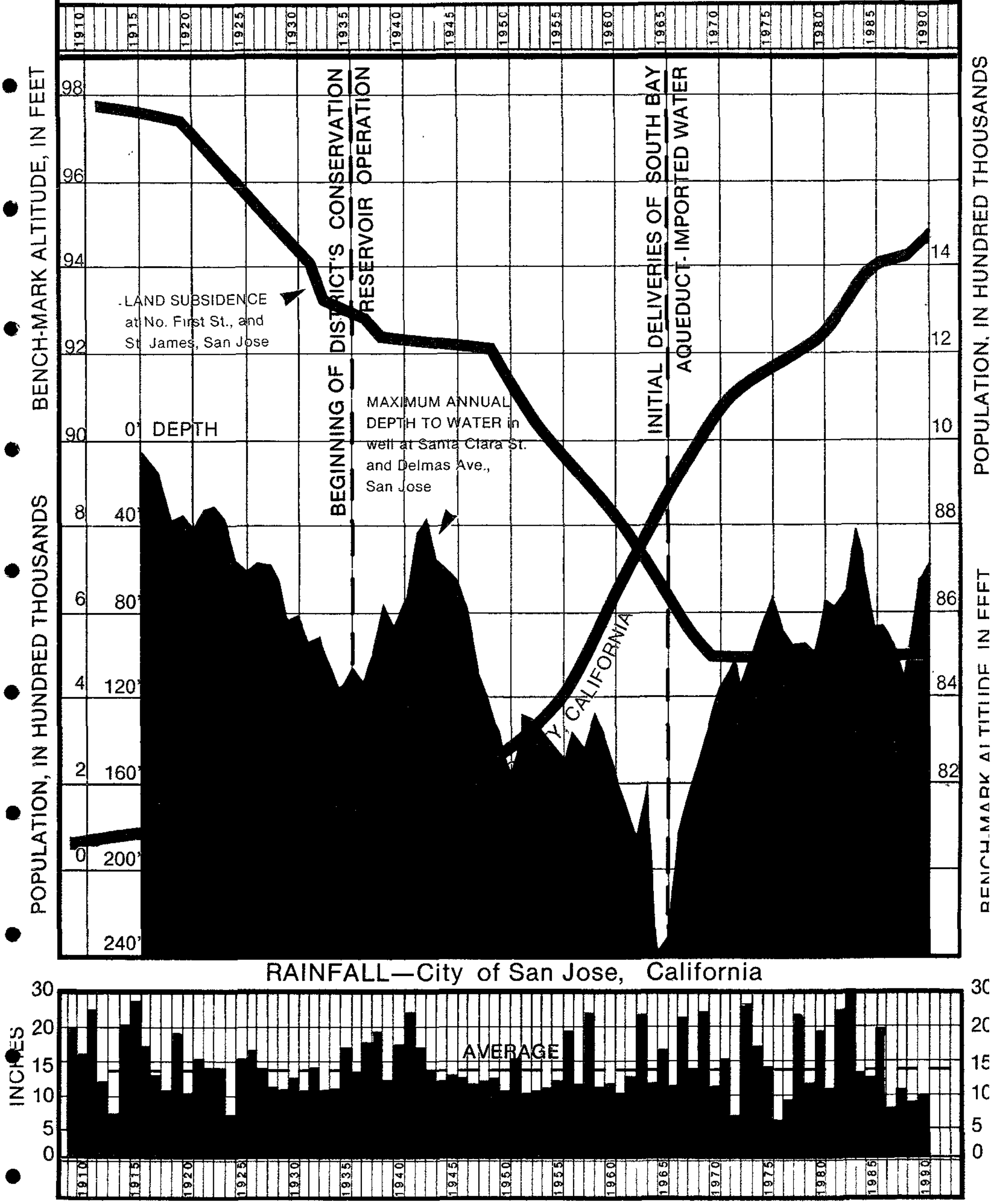
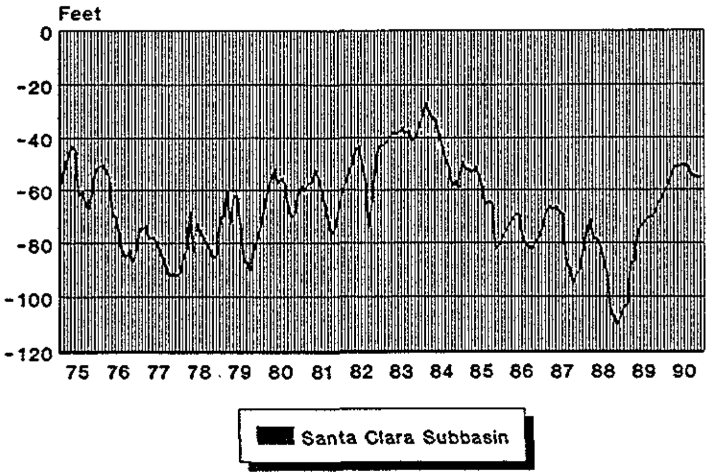
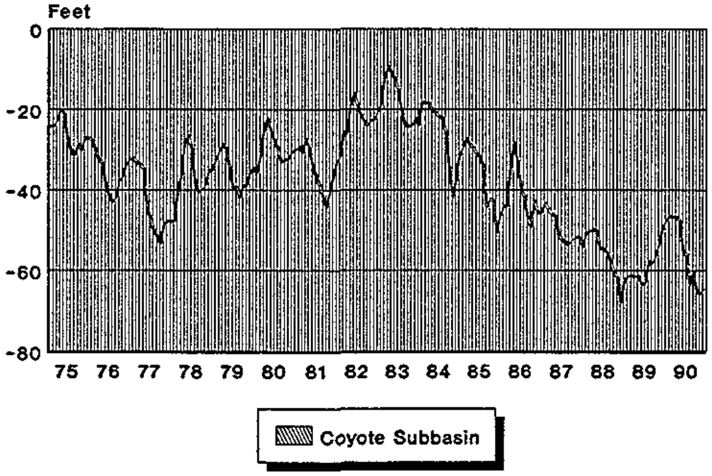


FIGURE 9

DEPTH TO WATER

SANTA CLARA COUNTY INDEX WELLS





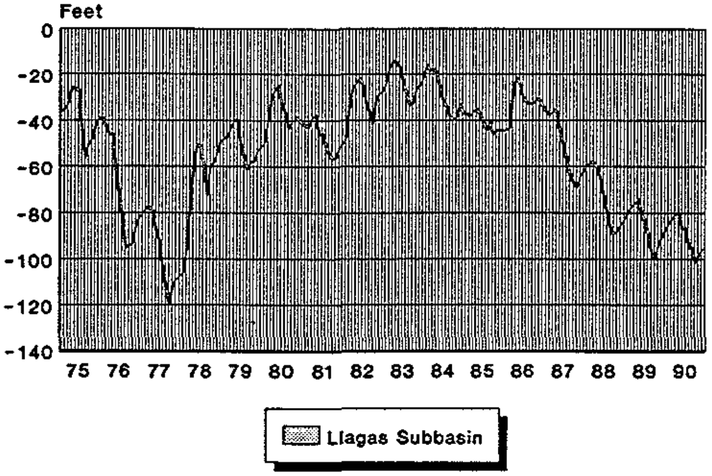
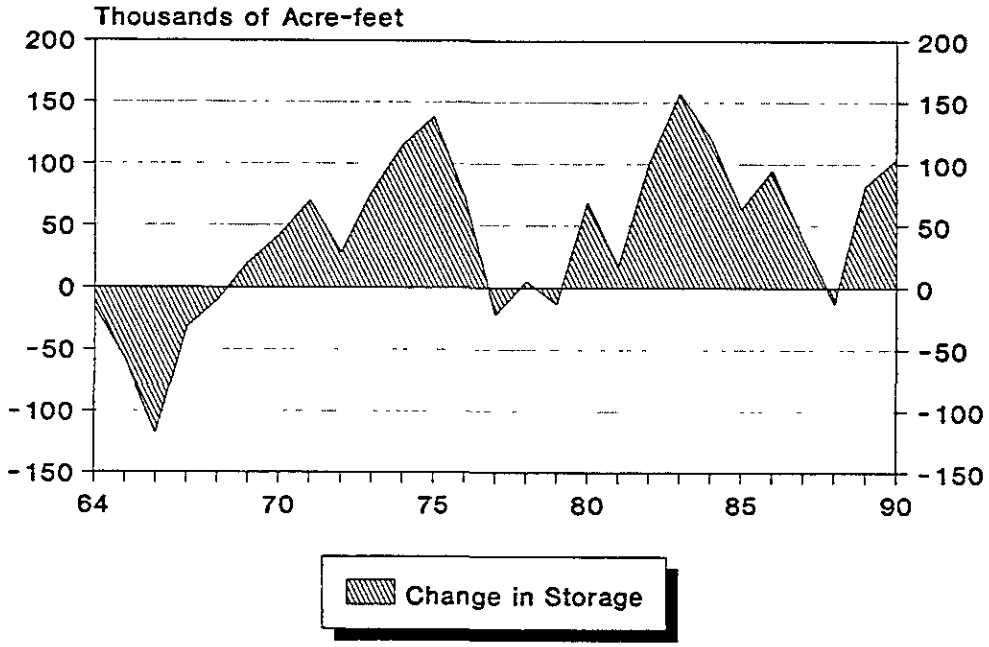


FIGURE 10

CUMULATIVE CHANGE IN STORAGE

SANTA CLARA VALLEY SUBBASIN



CHAPTER 4
WATER SUPPLY DEFICIENCIES

In the past, the District has recognized the need for additional water supplies for its rapidly increasing population, and has been successful in securing long-term imported water supply contracts. The District signed its contract with the Department of Water Resources in 1961 for an eventual entitlement supply of 100,000 acre-feet annually from the State Water Project. The District concurrently pursued Congressional authorization of the San Felipe Division of the Central Valley Project. The project was authorized in 1967, and a water supply contract with the U.S. Bureau of Reclamation was signed in 1977 for an entitlement of 152,500 acre-feet per year. Construction started in 1978, and was completed in mid-1987.

Long-Term Deficiencies

In spite of the District's planning, water management and conservation efforts, its water needs equaled and began to exceed its long-term average water supply from existing facilities in the early 1980's. With the San Felipe Division now in operation, the District estimates that its total water supply under average water year conditions will be able to meet its annual water needs until sometime well beyond the year 2000.

However, the drought years of 1987 through 1990 have shown that further analyses must be done to ensure adequate supplies in times of statewide and local shortage. In particular, the current drought has emphasized the vulnerability of imported supplies from the State Water Project, Central Valley Project, and Hetch-Hetchy Project. It is also apparent that the District needs to examine issues such as additional local storage capacity for imported supplies, and reexamine the feasibility of alternative supplies such as waste water reclamation. Potential water supply deficiencies, and alternatives to meet these deficiencies are currently being addressed in the District's update of its water supply management master plan.

The Department of Water Resources uses a Water Delivery Risk Analysis (WDRA) procedure to determine the amount of State Water Project deliveries that can be approved for delivery each calendar year. One major objective of the WDRA procedure is to ensure that prudent carryover storage will be maintained to support deliveries in subsequent years. During the current drought, the State Water Project storage reserves have been drastically depleted. The WDRA procedure has been used to ensure that the Project, as a minimum, maintains sufficient carryover storage to meet the next year's water quality requirements in the Delta and supply at least an emergency level of water deliveries.

The potential for future water supply shortages from the State Water Project is significant. According to the Department of Water Resources, the existing State Water Project facilities currently produce an Average Annual Critical Period Supply (AACPS) of 2.26 million acre-feet per year. State contractors' needs have already reached 3.5 million acre-feet for 1991. Construction of additional State Water Project facilities appears to have been delayed pending the Bay-Delta hearings on water quality issues and environmental impacts of transporting additional water through the Delta.

The availability of San Felipe Division water supplies beginning in 1987 has reduced, but not eliminated, the District's risk of future deficiencies. The San Felipe Division water service contract sets forth minimum quantities of water that the District must pay for, but allows the delivery of the maximum contracted entitlement provided that water is available in the Central Valley Project system. The minimum quantity originally set for the first full year of delivery in 1988 was 16,000 acre-feet, and for the second year, 22,000 acre-feet. Ironically, within two years of receiving San Felipe Project water, the District was requesting its full entitlement amount of 152,500 acre-feet to reduce the impact of drought. The actual amounts received in 1988 and 1989 were 80,000 and 119,000 acre-feet.

Short-Term Deficiencies: 1987-1990 Drought

The District is currently experiencing its fourth year of below average rainfall and uncertainty about imported supplies due to corresponding statewide drought. In 1988, after two years of below average rainfall, steadily decreasing groundwater levels, and increasing concern about the return of land subsidence, the District's Board of Directors recommended a voluntary 15 percent water conservation program. District staff also began working closely with local retail water agencies and cities to formulate a comprehensive water use reduction program. This cooperation resulted in the production of the 1989 Drought Management Plan.

The 1989 plan called for reducing water use 25 percent from 1987 base year amounts in a water use reduction program with rate incentives. Only the March 1989 rainfall that occurred in northern California saved the County from a mandatory 45 percent water use reduction program. That rainfall restored requested amounts of imported water and also allowed the District, via the Department of Water Resources, to purchase an additional 90,000 acre-feet of imported water from Yuba County Water Agency.

To implement the 25 percent water use reduction program in 1989, the County and fourteen incorporated cities adopted ordinances containing water use prohibitions and conservation measures. Several retail water agencies adopted inverted rate schedules or penalty structures to further encourage water use reduction.

In February 1989, the District's Board approved a $500,000 public awareness campaign focusing on water conservation. The campaign involved schools, the manufacturing industry, the landscaping or "green" industry, civic groups and others.

The ordinances and rate incentives adopted by retail water agencies, coupled with the public awareness campaign, made the 1989 water use reduction program a successful effort. Countywide water usage was reduced in 1989 by about 20 percent from the 1987 base year levels. Groundwater pumping was reduced by 50 percent. Groundwater storage was restored by an estimated 83,000 acre-feet, and the alarming decline in groundwater elevations was reversed.

In 1990, the County again faced cuts in imported water supplies and continuing below average local surface water supplies. In March of 1990, the District's Board again recommended a mandatory water use reduction program with rate incentives effective April 1 through October 31. In April of 1990, the District's Board approved an additional $600,000 to continue our public awareness campaign to encourage water conservation. On October 2, 1990, the Board voted to continue the mandatory program indefinitely, until local and statewide water conditions improve significantly and allotted another $325,000 to continue a public awareness campaign through the winter of 1990-91.

The conservation levels for 1990 were set at 20 percent for the northern part of the County, and 25 percent for the southern part of the County since that area relies exclusively on local groundwater for its supplies. The goal of this program is to hold overall groundwater storage approximately at 1989 levels, and so far, the program has been successful.

The District is actively promoting the use of reclaimed water for construction purposes, landscape irrigation, and certain agricultural uses. In addition, temporary groundwater recharge facilities have been built to increase underground storage in critical areas (Llagas Subbasin).

The current drought has demonstrated the necessity of working together to solve a common problem. The District has a better understanding of the systems and constraints of its retail water agencies, as well as those of the State, the Bureau of Reclamation and the San Francisco Water Department. The concerns of residents, businesses, industry and agriculture that rely on the District for imported and local water supplies are better understood. As 1991 begins, the District is continuing to meet regularly with local agencies to collectively address the possibility of continuing reductions in local and imported supplies in the event of a fifth year of drought.

CHAPTER 5

WATER QUALITY

Although legislative requirements for this Urban Water Management Plan do not require any discussion of water quality, significant resources of the District are committed to providing a water supply which is adequate not only in quantity but in quality.

The District has been involved in water quality monitoring, protection and treatment since the early 1960's. In recent years, however, the number of issues and projects to be addressed have increased dramatically. In 1988, the District formed two water quality divisions focused specifically on monitoring and protecting surface and groundwater, and providing drinking water which meets State and federal standards.

Surface Water Quality

Drinking Water

About one-third of the County's drinking water is imported from the Sacramento-San Joaquin Delta and treated at District facilities. To ensure that all water that leaves the District's treatment plants meets State and federal standards, the District performs more than 5,000 water quality tests per month. All treated water served by the District has consistently met or is of better quality than required by State and federal drinking water standards.

Water from the Delta contains natural organic materials, which, when treated with chlorine, create suspected carcinogens called trihalomethanes (THMs). Although below State and federal standards, THMs were unusually high in the District's treated water last year. The current drought caused seawater intrusion into the Delta, which contributed to THM formation. To keep THM levels within State Department of Health Service's drinking water standards, the District treated Delta water with chloramine, an ammonia/chlorine mixture that minimizes THM formation.

In addition to increasing THM levels, the current drought caused algae problems at the San Felipe Division's San Luis Reservoir, and the District's Calero and Anderson reservoirs which store water for later treatment. In the spring and summer months, algae blooms developed in the top 35 feet of these reservoirs. Although harmless to humans and pets, the algae caused taste and odor problems provoking consumer complaints. To control algae growth, the District sprayed the surface of both Calero and Anderson with copper sulfate, a chemical which suppresses the algae and is safe for drinking water. To control tastes and odors, the District implemented additional treatment at the water treatment plants.

To maximize the District's ability to get quality water from Anderson, a new multi-port outlet structure was built in 1988. This allows the District to draw water from three different elevations within the reservoir, thus providing the highest quality water. When algae is growing at the surface of Anderson, as it does in the spring and summer, water can be drawn from the lower ports; when silt accumulates at the bottom of the reservoir, as it usually does in winter, the upper ports will be used.

In 1990, a bypass pipeline was completed which allows imported San Felipe Division water and/or local Anderson water to be sent directly to the treatment plants without being stored in Calero Reservoir. This reduces the exposure of source water to algae problems in the spring and summer months.

Future Drinking Water Standards

Between the year 1986 when the federal Safe Drinking Water Act was amended, and the year 2000, the number of health-related regulations promulgated by the Environmental Protection Agency (EPA) will increase from 23 to more than 183. These regulations establish performance criteria for surface water filtration and disinfection, and maximum contaminant levels for disinfectant by-products and other constituents.

It is anticipated that these regulations will result in increased monitoring and substantial modification to current treatment processes. The District is preparing to meet these stricter drinking water quality standards. In 1988 the District joined the Alameda County Water District in a pilot study of THM reduction methods. The District also joined major urban water agencies to study ways to improve the quality of Delta water delivered to urban areas. Improving the quality of source water delivered from the Delta will be an important factor in meeting more stringent drinking water standards in the future.

In summary, the new drinking water regulations will have a significant impact on the District's overall planning of water supply and distribution systems, as well as treatment processes.

Surface Water Quality Monitoring Program

Since 1979 the District has participated in a program with the U.S. Geological Survey to monitor water quality at twelve sites in five local streams. The sampling program includes three prescheduled trips in the low flow season, and four storm-related trips during winter and spring months. In addition, the District has cooperated in a program of reservoir water sampling at two District reservoirs (Calero and Lexington).

Nonpoint Source Program

The disposal of motor oil, radiator antifreeze, solvents and other hazardous materials along creeks and in storm sewers continues to be a concern. In recent years the District has cooperated with other local agencies to address this problem. In June 1990, the San Francisco Bay Regional Water Quality Control Board adopted a five-year National Pollution Discharge Elimination System (NPDES) permit for the Santa Clara Valley Nonpoint Source Program. This permit requires that the 15 participating agencies (the 13 cities of Santa Clara County tributary to San Francisco Bay, the County and the District) comply with ten provisions to control nonpoint sources of pollution through the implementation of specific programs with compliance dates.

The total Nonpoint Source Program budget for 1990-91 has been established at $2.6 million, of which about $1.7 million are for consulting services to establish control and monitoring programs, and provide public education and information. In January 1989, the District on behalf of the Program received a $95,000 grant from the Environmental Protection Agency to supplement funding for this program.

Groundwater Quality

The County's groundwater basin has traditionally produced very high-quality drinking water. In recent years, however, leaking underground tanks and industrial spills have posed a serious threat to the County's underlying groundwater basin.

Groundwater Contamination and Cleanup Activities

At various locations in Santa Clara County, chemicals from a variety of industrial and municipal sources have been detected in shallow and sometimes deep aquifers. Since 1984, IBM and Fairchild corporations have worked to clean up contamination caused by leaks from chemical storage tanks. Both companies pump groundwater from the contaminated area, treat it, reuse some and dispose the remainder in nearby creeks, where low concentrations of remaining contaminants evaporate. In 1988, due to the drought and increasing concern over groundwater levels in that area, the District worked with both companies to reduce pumping by two-thirds while maintaining the effectiveness of cleanup efforts. In addition, the District worked with CALTRANS to reuse the extracted groundwater for soil compaction and dust control at construction sites.

Well Sealing Program

Underground clay layers (aquitards) usually stop most chemical leaks from migrating to the deeper drinking water bearing material (aquifers). However, at numerous sites in the County, these layers are punctured by old agricultural or abandoned wells that may contribute to the spreading of contaminants to the deeper aquifers.

Since 1984, the District has worked to identify and seal abandoned and inactive wells that may serve as conduits for contamination. As of October 1990, a total of 466 wells have been destroyed at a total cost of about $800,000.

The program focuses on those areas of the groundwater basin most vulnerable to contamination in the shallow aquifer in order to maximize the benefit from the destruction of wells. Priority is given to wells in areas surrounding known or suspected contamination plumes and wells near existing or closed landfill sites and auto wrecking yards.

In addition to the District's own efforts to seal abandoned and inactive wells, the District conducts a program to permit the construction and destruction of wells by others in Santa Clara County. In July 1989, the District published a handbook explaining new construction and destruction standards for wells and other deep excavations. These new standards contain licensing requirements for contractors and consultants involved in well construction and destruction, new requirements for sanitary seals for all wells, and instructions for suitable methods of well destruction. The standards were developed in cooperation with the County Health Department.

Fuel Leak Detection Program

In cooperation with the State Water Resources Control Board, District staff administers a program to identify and clean up motor fuel tank leaks at gas station sites. As of November 1990, there were a total of 1,183 fuel leak cases in Santa Clara County. District staff is providing direct oversight on 159 of the most severe cases. To advance the cleanup of fuel leak sites not receiving direct oversight, guidelines were developed for consultants and responsible parties. The District has also conducted seminars for consulting engineering firms on application of these guidelines.

Groundwater Quality Monitoring Network

A general groundwater quality monitoring program was developed in 1980 and implemented with limited success. This program is now undergoing review and redefinition. Recharge areas, shallow and deep aquifers of the three major subbasins, and possibly some mountain subbasins in Santa Clara County, would be monitored as part of this program. The density of monitoring points will be determined based on the location of hydrographic units, drinking water wells, and the surrounding land uses. The objectives of the program are: (1) to generate data representative of actual groundwater quality conditions; (2) to determine seasonal and long-term water quality trends; (3) to identify areas of rapid water quality change or degradation.

In addition to the general network, for over 20 years the District has monitored salinity in about 15 wells located near San Francisco Bay.

CHAPTER 6

WASTE WATER RECLAMATION

The District has participated extensively with local public agencies and appropriate State and federal agencies in studies to determine the viability of using reclaimed water as a replacement for potable water to reduce the need for "new" water supplies in Santa Clara County. Reclaimed water is considered to be water which, as a result of treatment of domestic wastewater, is suitable for a direct beneficial use or a controlled use that otherwise would not occur.

Currently, about 1,200 acre-feet per year of supply has been developed. This production is from four facilities: the San Jose-Santa Clara Water Pollution Control Plant, the Palo Alto Reclamation Plant, the Sunnyvale Treatment Plant, and the Gilroy Reclamation Plant. About 100 acre-feet per year is reclaimed from pumping related to groundwater contamination cleanup at the IBM and Fairchild facilities in San Jose. The reclaimed water is used for dust control at construction sites, and other appropriate purposes.

As part of the District's 1975 Water Supply Master Plan, reclaimed water was identified as a potential source of supply. The anticipated supply of reclaimed water projected at that time was around 11,000 acre-feet per year.

Also in 1975, the District and the Department of Water Resources reached an understanding whereby the District indicated that it was willing to allow its maximum annual contracted entitlements of San Felipe Division water deliveries (152,500 acre-feet) and South Bay Aqueduct water deliveries (100,000 acre-feet) to be limited to 137,500 and 95,000 acre-feet, respectively, unless a determination was made before January 1, 1990, that the District's supplemental water needs above those reduced contract amounts could not feasibly be met by reclaimed wastewater.

The District subsequently participated in a series of cooperative water reclamation studies and projects with various State, federal and local agencies. These studies and projects indicated that feasible uses of reclaimed water in Santa Clara County were much more limited than previously thought. In December 1989, a determination was made that reclaimed water cannot currently meet the District's supplemental water needs, and the full entitlements of imported water contracts have been restored.

Despite difficulties in developing reclaimed water as a source of supply, it is still a major alternative currently being evaluated as the District updates its water supply master plan. Details of studies and projects conducted in the past, as well as current studies being done in cooperation with the City of San Jose, are included in the following sections.

Past Water Reclamation Studies

In the late 1970's, the firm of Brown and Caldwell, Consulting Engineers, was retained by the District to investigate the demand for and the feasibility of supplying water from the San Jose-Santa Clara Water Pollution Control Plant to potential users in the northeastern part of Santa Clara County (San Jose and Milpitas). The study concluded that using reclaimed water was not an economically viable alternative to potable water on a price basis using incremental cost pricing. It was recommended, however, that continued efforts be made toward a viable water reclamation project.

Another early study done under a joint exercise of powers agreement with a number of other agencies explored potential large-scale reuse of San Francisco Bay Area wastewater. A wide range of alternative projects was examined, the most promising being the delivery of reclaimed water to the western Delta for salinity control. It was proposed that the freshwater from northern California rivers which otherwise would be used for salinity control could then be used to meet contractual obligations of the State Water Project and the Central Valley Project. This alternative, however, was dependent upon the construction of the Peripheral Canal.

In the early 1980's, a two-phase study was conducted with the Department of Water Resources. The first phase (I-A) investigated the possibility of transporting reclaimed water from the San Jose-Santa Clara Water Pollution Control Plan and the Gilroy Reclamation Facility for agricultural and open-space irrigation. The study concluded that it was not financially feasible to use reclaimed wastewater for irrigation without obtaining large subsidies. The second phase of the project (I-B) analyzed the potential reuse of wastewater from the San Jose-Santa Clara Pollution Control Plant for groundwater injection in the Santa Clara Valley Subbasin. Results of this phase focused on the absence of federal or State water quality standards for using reclaimed water as a source of drinking water, the possibility of contaminating the aquifer, and the high possibility of public rejection of such a project.

Palo Alto Reclamation Facility

Because of historic groundwater overdrafting, seawater intrusion has become extensive in the shallow aquifer in the Palo Alto area. In 1977, the District cooperated with the Cities of Palo Alto, Los Altos and Mountain View in a program of water reclamation and groundwater recharge via injection wells in the San Francisco Bayfront Area. The source of reclaimed water was the Palo Alto Reclamation Facility, an advanced water treatment plant with a capacity of four million gallons per day (MGD). The facility uses effluent from the adjacent 35 MGD Palo Alto Regional Water Quality Control Plant.

The purpose of the project was two-fold: (1) create a freshwater barrier to seawater intrusion by injecting reclaimed water into shallow aquifers; and (2) use reclaimed water from the Palo Alto Reclamation Facility for landscape irrigation. The recharged water would also be extracted for irrigation use before it had moved far enough inland to commingle with water used for potable supply.

Unfortunately, neither plan succeeded. The complex makeup of the aquifer precluded the success of the simple injection-extraction concept underlying the project. Negative public attitude and an ample supply of freshwater has limited the use of reclaimed water for landscape irrigation. The plant currently produces less than 300 acre-feet per year.

Extensive studies made by the U.S. Geological Survey, in conjunction with the District, concluded that the injection/extraction operation at the Palo Alto Reclamation Facility is not the most effective way to provide a saltwater intrusion barrier as originally contemplated. The District received permission from the Environmental Protection Agency to disband the facility's wellfields, which was accomplished in the 1985-86 fiscal year. In addition, the reclamation facilities were turned over to the City of Palo Alto as of July 1, 1985.

Gilroy Reclamation Facility

The District co-sponsored construction of the Gilroy Reclamation Facility with the City of Gilroy and the Gavilan Water Conservation District. The facility was constructed in 1977 in response to the need for new water supplies in the Gilroy area following the 1976-77 drought, and the resultant severe overdraft of the limited groundwater table. The capital cost of the project, about $1,900,000, was financed by an interest-free loan of $1,250,000 from the Bureau of Reclamation and a local contribution of $650,000 shared by the cosponsors.

The facility, which has the capacity to produce about 1,500 acre-feet of reclaimed water annually, provides special treatment to domestic sewage from the Cities of Gilroy and Morgan Hill. The intent was to use the reclaimed water to irrigate non-food crops and landscaping. Users originally contracted for about 700 acre-feet per year, but actual use was much less. During the five-year period from fiscal year 1978-79 through 1982-83, an average of about 240 acre-feet of reclaimed water per year was delivered at an average cost of about $490 per acre-foot. This unit cost covered only operations and maintenance costs. Due to the promulgation of more stringent wastewater reclamation criteria (Title 22, Division 4, California Administrative Code), poor marketing strategy, unfavorable public attitudes and other factors, the Gilroy Reclamation Facility discontinued operation in the early 1980's.

However, the current drought which began in 1987 caused renewed interest in supplying water from the Gilroy Reclamation Facility. In 1989, some modifications were made to the facility to comply with coliform and pH requirements set by the San Francisco Regional Water Quality Control Board. These included upgrading the chlorination unit size from 200 lb/day to 500 lb/day, and modifying the acid-feed pump. Since its start-up in June of 1989 through October of 1990, the Gilroy Reclamation Facility has produced about 300 acre-feet of reclaimed water. The current price for water from the system is $20 per acre-foot for agricultural use and $80 per acre-foot for uses other than agriculture.

Current Water Reclamation Study with City of San Jose

In January 1989, the San Francisco Bay Regional Water Quality Control Board ordered the San Jose-Santa Clara Water Pollution Control Plant to stop the degradation of critical Bay saltmarsh habitats caused by the Plant's freshwater discharge. In October 1990, the State Water Resources Control Board amended the enforcement order to limit the flows discharged to the South Bay to not more than 120 MGD, average dry weather flow.

In November 1990, the District's Board of Directors authorized joint participation with the City of San Jose in the initial phase of two water reuse programs, one which addresses nonpotable water reuse, and one which addresses potable water reuse. The costs of the initial phase (Phase 1) of both programs will be shared equally by the City of San Jose and the District.

Nonpotable Water Reuse Program

Phase 1 of this program is a facility plan which includes a market survey, analysis of water quality requirements, and predesign of the treatment processes and distribution system to deliver about 10 MGD of reclaimed water annually. This phase is estimated to cost $650,000 and is proposed to be completed in early 1992.

Phase 2 would consist of an Environmental Impact Report (EIR), and the design and construction of the 10 MGD treatment facilities and distribution system. The estimated capital cost for Phase 2 is about $55 million, or an estimate unit cost of $860 per acre-foot. Subsequent phases of the nonpotable project would consist of additions to the treatment facilities and the extension of the distribution pipelines into new markets.

Potable Water Reuse Program

Phase 1 of this program includes a facility plan for a demonstration plant and a groundwater model. The facility plan is expected to cost $510,000 and the groundwater model is expected to cost $1,000,000. Both of them are proposed to be completed by the end of 1991.

Phase 2 would design, construct, and operate the pilot plant to demonstrate that health goals and plant reliability can be obtained. During Phase 2, the groundwater model would be used to show compliance with the proposed regulations on groundwater recharging of reclaimed water.

Phase 3 would consist of an EIR, the design and construction of the project, the integration of the additional processes into the existing nonpotable facilities, and the extension of the distribution system to recharge areas. The nonpotable distribution system would be sized to accommodate this additional flow. The estimated capital cost is about $400 million, or an estimated unit cost of $1200 per acre-foot to supply reclaimed water for groundwater recharge. These costs do not include other costs that may have to be incurred, such as the construction of storage and distribution facilities or additional recharge facilities that may be necessary to re-regulate the relatively uniform source flow from the treatment plant to the groundwater recharge facilities.

CHAPTER 7
WATER UTILITY OPERATION AND MAINTENANCE

Water Utility Facilities

The District currently operates and maintains ten water conservation reservoirs, three water treatment plants, one wastewater reclamation plant, one hydroelectric facility, three pumping plants, 326 acres of groundwater recharge facilities, over 30 miles of treated water pipelines, and over 60 miles of raw water pipelines and canals.

Management of Water System Pressures and Peak Demands

The management of water system pressures and peak demands relates to two different elements of the design of the District's distribution facilities. System pressure is one of the major factors considered in determining the location of new facilities, while peaking is a primary consideration in determining the size of the facilities.

System Pressure

The District's two imported water supplies, the South Bay Aqueduct of the State Water Project and the San Felipe Division of the Central Valley Project, each deliver water to the District at elevations high enough so that most of the District's service area can be furnished water by gravity or with minimal pumping. In the design of the distribution systems and treatment facilities, locations and alignments are selected so that the advantages of relatively high hydraulic elevations would be preserved.

The District, as a water wholesaler, provides water to its retail water agencies which, in turn, try to make effective use of any pressure advantages within their own individual distribution systems. Details regarding the management of specific retail agency's water system pressures can be found in their respective plans.

The District uses automatic protective devices to ensure that design pressures are not exceeded in its pipelines. These are primarily hydraulically operated pressure relief valves. The District also has a comprehensive preventive maintenance program staffed by trained personnel who ensure that the system and safety devices are regularly maintained, tested, repaired and kept in proper working order.

The District has constructed one small hydroelectric generating plant near the base of Anderson Dam where the Santa Clara Conduit of the San Felipe Division joins the Coyote Pumping Plant near Morgan Hill. The hydroelectric plant will capture energy that otherwise would have been dissipated in pressure reduction devices.

Peak Demands

The water demands of individual customers, and in turn of local retail water agencies, fluctuate widely from day to day and throughout the year. The District's general policy is to provide sufficient system capacity so that in the peak-use summer months, treated water can be delivered at a rate of 180 percent of the then current annual volume expressed as an equivalent uniform flow rate over the full year. Historically, the District had contracted to meet three-day peak demands of up to 205 percent of the annual amount contracted for expressed as an annual flow. In recent contracts, however, the District has included the provision that during the period from July 1, 1979 to June 30, 1990, the District may limit the maximum flow rate for each contractor to 180 percent of its then current annual amount expressed as an annual uniform flow rate. This provides a basic level of peaking (180 percent) for treated water deliveries, and encourages treated water contractors to meet additional peaking needs from their own production and storage facilities. More specific information regarding the retail water agencies' peak demands can be found in their respective plans.

Exchanges and Transfers of Water

There are continuing discussions among agencies located in the central and south San Francisco Bay region, through the Bay Area Water Resources Council, to explore means for responding to area water shortages.

In particular, the District has been discussing with the San Francisco Water Department the potential benefits of an intertie between the District's system and the Hetch Hetchy system for emergency situations. The District does not contract for Hetch Hetchy water itself, but several of its retail water contractors also have water supply contracts with the San Francisco Water Department for Hetch Hetchy water.

The District is in the process of extending its distribution system to serve the City of Milpitas, which will bring the two systems together.

Leak Detection

The District conducts monthly ground level and aerial surveys along its pipelines to look for seepage leaks. Small leaks show up as seepage before they would be detectable any other way. The District has no unaccounted water losses within the accuracy of its meters. Considering that all water is accounted for, the use of more elaborate leak detection methods does not appear necessary or cost effective.

Corrosion Control

All District facilities potentially subject to corrosive action either have some form of cathodic protection or are monitored routinely to ensure that a serious problem is not developing.

CHAPTER 8
CURRENT WATER CONSERVATION MEASURES

Program Goals and Major Components

Santa Clara Valley Water District has an overall long term water use reduction program which encourages the wise use of water through public information, education and other activities.

In response to the current drought, the District has worked closely with local water retailers to develop specific countywide water use reduction goals in order to match available supply with anticipated demand. To achieve these goals, the District worked with retail agencies and cities to develop appropriate water use reduction ordinances and pricing policies. In addition to ongoing water conservation public information activities, the District conducted a mass media campaign utilizing the print media, radio and television to explain drought conditions and various conservation techniques.

Advisory Committees

When the District began its water conservation program in 1975, one of its first actions was to have an advisory committee review the measures recommended in its report, Water Savings. Since that time, the District has reviewed and evaluated its water conservation activities periodically with various advisory groups. These groups include the Santa Clara Valley Water Commission, Agricultural Water Advisory Committee, Retail Water Agencies' Committees, Landscape Advisory Committee, and the Treated Water Contractors.

The District continues to coordinate its water conservation activities with these groups, in order to develop and implement the programs discussed in this report. Instead of forming one large water conservation committee to cover the whole program, the District forms different advisory groups to address specific needs as they develop.

For example, the District recently established a Landscape Advisory Committee to provide guidance to the District Board and local jurisdictions on drought tolerant plant materials and low water use irrigation techniques. The Committee consists of a wide range of representatives from the "green industry" which includes nurserypeople, landscape contractors, professional gardeners, and various representatives from those agencies responsible for outdoor irrigation such as parks, golf courses, school campuses, and so on. It is anticipated that recommendations form this Committee will have a long-term impact on reducing outdoor water use.

Public Information and Education

The District's education and public information effort has been designed to promote water conservation awareness and to assist local retail water agencies, businesses, and individuals. The following describes these programs.

Conservation Literature

The District will continue to publish, distribute and update water conservation literature to encourage water use reduction. Currently available literature includes:

"25 Things You Can Do to Prevent Water Waste"
"Ways to Save Water"
"The Story of Drinking Water"
"The Unthirsty 100" (drought resistant plants)
"Drip" (drip irrigation systems)
"Lawn Watering Guide"
"Water Conserving Landscape Referral List"
"Using Household Waste Water on Plants"
"Water Savings Devices"
"Stick Up for Water" (conservation decals)
"Water Conservation Guide for Restaurants"
"Commercial/Industrial Water Conservation Guide"
"Policy on Graywater Usage During Drought Conditions"
"Gray Water"
"A Landscape guide to Native and Naturalized Plants in Santa Clara County"
"Questions About Graywater"
"How to Save Water"
"Reduce Your Water Use"
"Save Water" (poster in Spanish, Vietnamese and English"
"Arrest a Drip" (stickers)
"Discover Water"
"Did You Know?" (Restaurant Table Tents)
"1990/1991 School Calendar" (water conservation theme)

Promotional Efforts

Public relations activities are designed to reach large numbers of people with various conservation messages. Programs include:

- Literature distribution at the Santa Clara County Fair and other large gatherings such as Scout O'Rama and other local events continues on a large scale. An estimated 100,000 pieces of literature are distributed annually.

- Tours of District facilities include significant information about why and how to conserve water.

- About $12,000 was spent in 1985 to create a permanent Water Discovery Trail in Vasona Park, the most visited park in the County with annual visitor-days in excess of one million. The "trail" is a series of art panels that describe our water system and the need to conserve.

In 1989 and 1990 the District placed billboards throughout the County to describe the need for conservation. One large board, on one of the busiest streets in the County, is maintained permanently for water conservation messages.

Numerous public presentations were made to area service clubs, corporate management and employee groups, and other groups to describe our water system and the need for conservation.

Mass media messages regarding the need for and methods of conservation have been disseminated during the past five years through the efforts of the District's public information office.

In-School Education

The District has distributed an average of about 25,000 student workbooks and teachers guides on request each year since 1977 at an average annual cost of about $15,000. This program will continue and is conducted in cooperation with the Santa Clara County Office of Education.

A new film, "Voices of Water", was completed in 1985. This film emphasized the water systems of Santa Clara County and why water should be conserved. The film is used primarily by 2nd to 5th grade elementary school students; the costs for production and distribution exceeded $34,000.

In 1986 the District retained a consultant to prepare new classroom education materials for upper elementary school students (4-6 grade). At a cost of $40,000 "Water for Santa Clara County" was produced and in 1987 the District hired a teacher to introduce the new book to the schools. The emphasis of "Water for Santa Clara County" is water management in Santa Clara County, where the county's water comes from, how it is distributed, and how to and why conservation is necessary.

Copies of the film, "Water Follies: A Soak Opera" are loaned to schools and other groups for viewing through the District's public information office and the Santa Clara County Office of Education Media Center. An average of 20,000 students see it annually. This film is suitable for all age groups.

The District film "Water: Too Little and Too Much" is distributed for check out to schools and adult groups. It is suitable for junior high school and above. The film gives an overview of water management in Santa Clara County with water conservation an important aspect of the film.

Since 1987 the District public information office has been sponsoring a yearly workshop for teachers that includes hands-on training in water experiments for the elementary school classroom and information on water education materials available to elementary school teachers.

Conservation Kits

In addition to the City of San Jose's extensive showerhead retrofit program, the District has distributed over 400,000 conservation kits. These kits include showerhead flow restrictors, toilet dams, dye tablets for detecting leaks, and conservation literature. Conservation kits are distributed at District offices and are free of charge.

California Irrigation Management Information System

In cooperation with the University of California Agricultural Extension Program and the Department of Water Resources, the District purchased meteorologic instrumentation for a California Irrigation Management Information System (CIMIS) station located at the Deciduous Fruit Field Station in San Jose. This station allows local gardeners and farmers to manage their irrigation practices more efficiently.

Environmental Impact Reports/Statements

The District routinely reviews Draft Environmental Impact Reports (EIR's) sent in by planning departments of local cities and the County regarding projects that will greatly increase the demand for water. The District also reviews Draft Environmental Impact Statements (EIS's) involving proposed federal projects. The District encourages local agencies to make water conservation recommendations when reviewing and writing EIR's and EIS's.

Water Conservation Ordinances

Local city governments have the primary responsibility and authority for establishing water conservation ordinances within the District's service area. Several cities are retail water agencies themselves. Private retail water agencies work with their respective city councils for the areas in which they serve to achieve the adoption of water conservation ordinances.

During the recent drought, the District worked closely with local retailers and cities to develop elements of a model ordinance encouraging water conservation, listing water use reduction measures, and prohibiting wasteful water practices. Components of existing conservation programs by cities and retail water agencies are summarized in Table 4.

Legislation and District Ordinances

In 1989, the District sought and obtained legislation to augment the Act from which the District has its authority. The augmentation provided for a variable groundwater extraction rate that would be imposed on those pumping groundwater in excess of a volume determined to be detrimental to the groundwater supply, or the aquifer itself. Such a rate structure would be imposed when it is determined that a condition of drought or water shortage exists.

Ordinance 89-1

In February of 1989 the District's Board of Directors adopted an ordinance that establishes a program of regulation of groundwater extraction. Through a process of formal finding and public hearing, that a source of groundwater is in immediate danger of causing land surface subsidence or other permanently injurious consequences of overdraft, may impose certain restrictions on such use. These may include requiring a license to use and/or construct any and all water wells, require reporting to the District of water well production, and to control and suspend groundwater extractions at a point appropriate to reduce the danger. A copy of the full ordinance is included in Appendix 4.

TABLE 4

SUMMARY WATER CONSERVATION PROGRAM COMPONENTS

	City of Campbell	City of Saratoga	City of Monte Sereno	Town of Los Gatos	City of Los Altos	Los Altos Hills	City of Cupertino	City of Mountain View	City of Palo Alto	City of Milpitas	City of Sunnyvale	City of San Jose	City of Gilroy	City of Morgan Hill	City of Santa Clara	County of Santa Clara	San Jose Water Company	California Water Service Co.	Great Oaks Water Company
COMPONENT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
*1. NO DEFECTIVE PLUMBING	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
*2. NO GUTTER FLOODING	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
*3. NO WASHING VEHICLES W/O AUTO SHUT-OFF VALVE, BUCKET	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
*4. NO CLEANING SIDEWALKS, BUILDINGS, HARD SURFACED AREAS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5. NO CLEANING EXTERIOR OF BUILDINGS/WINDOWS W/O BUCKET, AUTO SHUT OFF											X	X	X						X
*6. NO OPERATION OR MAINTENANCE OF DECORATIVE FOUNTAINS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
*7. NO USE OF POTABLE WATER FOR CONSTRUCTION PURPOSES	X	X	X	X	X					X		X	X			X	X	X	X
8. USE RECLAIMED WATER CONSTRUCTION PURPOSES						X	X	X	X		X				X				
*9. LANDSCAPE WATERING RESTRICTED HOURS	X	X	X				X	X	X		X	X	X	X	X	X			X
10. LANDSCAPING: NEW OR EXIST. MINIMAL TO COMPLY WITH CITY POLICY										X							X	X	
11. NEW IRRIGATION CONNECTIONS ONLY WITH WATER SAVING FIXTURES															X				
12. RESTAURANT SERVICE CUSTOMER REQUEST ONLY	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
*13. RESTAURANT, HOTELS, RESTROOMS POST NOTICE OF DROUGHT CONDITIONS												X							X
*14. HYDRANT FLUSHING FOR HEALTH AND SAFETY ONLY	X	X	X	X	X		X	X			X	X	X	X	X	X	X	X	X
*15. PROHIBIT SINGLE PASS COOLING SYSTEMS	X		X				X	X		X	X				X	X			
16. RESTRICT BLDG, GRADING, PLUMBING PERMITS, RE: NEW OR EXIST. WELLS		X																	
17. NO USE IN EXCESS OF ALLOCATION WITHOUT PENALTIES				X													X	X	
18. REQUIRE USE OF DROUGHT TOLERANT PLANTS.						X													
19. NO FILLING, REFILLING NEW OR EXIST POOLS, SPAS, PONDS									X	X			X		X				
20. REQUIRE COVERS FOR POOLS, SPAS												X							X
21. NO CONSTRUCTION OF NEW POOLS, LAKES, LAGOONS, PONDS															X				
22. REQUIRE WATER SAVING DEVICES ALL NEW CONSTRUCTION										X									
23. USE OF NON POTABLE, RECLAIMED WATER MUST COMPLY WITH ALL REGULATIONS											X								
24. USE SAVING METHODS WHEREVER APPROPRIATE						X													

*ORIGINAL MODEL CONSERVATION ORDINANCE ELEMENTS RECOMMENDED/ADOPTED BY SCVWD/CITIES/WATER RETAILERS/ 3/22/89

CHAPTER 9

EXPANSION OF CONSERVATION PROGRAM

Overview

The District recently authorized the hiring of a full time Water Conservation Coordinator. The purpose of the position is to develop a water conservation strategy for the District in concert with State and local programs. The position will participate in regional conservation programs as well as develop specific programs for District administration. The following is a summary of various areas in which the District expects to expand its conservation effort in addition to the current programs discussed in Chapter 8.

A wide variety of conservation methods and techniques are being implemented throughout the State and in other water short areas of the country. Data on the real costs and results of conservation measures will be gathered and evaluated from other agencies. This analysis will aid in developing a comprehensive program that utilizes the most effective water use reduction techniques, or "best management practices" applicable to Santa Clara County.

The District's retail water agencies have implemented conservation measures and "best management practices" which are described in their respective Urban Water Management Plans.

Pricing Policies

Historically, the District has had a pricing structure designed to meet anticipated expenditures for administration, operation and maintenance of the water utility enterprise. With recent changes to the District's enabling legislation, pricing of groundwater in critical areas can now be set to discourage excessive pumping. This is an important water management tool to protect the groundwater basin, but is not specifically designed to achieve water conservation on a broad scale.

At the retail level, price incentives have been used very effectively to encourage water use reduction. A similar approach may be desirable at the wholesale level. The political and economic impacts, and potential water conservation, will be evaluated.

Ultra Low Flush Toilets (ULFT)

It is estimated that up to 40 percent of indoor water use is for flushing toilets. The installation and retrofitting of ultra low flush toilets in Santa Clara County could result in long-term permanent water savings.

The District is currently working with the City of San Jose to determine the impacts and effectiveness of an ULFT retrofit program. In particular, the discarded toilets could have a significant impact on solid waste disposal facilities in the area. The District's participation in a Countywide program will be carried out with the various local jurisdictions over the next several years. Current legislation will require that ULFT (1.6 gallons/flush) be installed in all new or remodeled buildings after January 1, 1992.

Xeriscaping Incentives

Xeriscaping is an outdoor landscaping technique that utilizes very little water. Some agencies in the State have implemented incentive programs to encourage this type of landscaping, or required this type of landscaping in new developments. For example, in Marin County one agency implemented a "cash for grass" program to encourage the replacement of high water use lawns with low water use xeriscaping. Another typical implementation of xeriscaping is a requirement in city ordinances that median strips and parking strips not be planted in lawn.

The costs and effectiveness of such programs will be investigated to determine its applicability to residential, commercial and industrial water users in Santa Clara County.

Water Audits

A series of residential, commercial and industrial water audits have been conducted over the past several years by various agencies. These audits identified a number of cost effective water saving practices. The results of these audits will be compiled and distributed to local jurisdictions for possible incorporation into existing water conservation ordinances.

Other Programs

A wide range of water use reduction techniques and strategies have been developed and implemented with varying results. The District will continue to maintain contact with other local, State and Federal agencies through meetings and conferences in order to remain current on the most effective techniques to reduce water use.

CHAPTER 10
SUMMARY

In response to State legislation, the District has prepared an Urban Water Management Plan. Since the District is a water wholesaler and its retail water agencies are preparing their own reports, the District is not required to prepare such a plan. However, in view of the District's overall water management responsibility, it seems appropriate to develop this plan.

Santa Clara County has sufficient local and imported long-term average water supplies to meet annual water demands beyond the year 2000. However, in times of local and statewide drought, entitlements of imported water are subject to reductions, and local surface and groundwater storages are not replenished. If groundwater storage is depleted beyond a critical level, land surface subsidence and its devastating effects may begin to occur.

In light of these expected deficiencies, the District is in the process of examining additional local storage capacity for imported supplies, and reexamining the feasibility of alternatives such as waste water reclamation. This is being accomplished in an update of the District's water supply master plan.

The current drought has shown us that conservation is a key element of water management in Santa Clara County. The mandatory water use reduction programs implemented in 1989 and 1990 have been successful in compensating for short-term deficiencies in supply. The success of these programs can be attributed to vigorous public information campaigns, the implementation of rate incentives and excess use charges, the adoption of conservation ordinances, and the promotion of water reuse and reclamation for appropriate purposes.

The District's ongoing water conservation program has been developed and implemented in cooperation with retail water agencies and appropriate advisory committees. District staff, including the newly-approved Water Conservation Coordinator, will continue to work with these groups and others to expand current programs and develop new ones.

APPENDIX 1
LEGISLATION

Assembly Bill No. 797

CHAPTER 1009

An act to add and repeal Part 2.6 (commencing with Section 10610) to Division 6 of the Water Code, relating to water conservation.

[Approved by Governor September 21, 1983. Filed with Secretary of State September 22, 1983.]

LEGISLATIVE COUNSEL'S DIGEST

AB 797, Klehs. Water: management planning.

(1) Under existing law, local water suppliers may, but are not required to, adopt and enforce water conservation plans.

This bill would require every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare and adopt, in accordance with prescribed requirements, an urban water management plan containing prescribed elements. The bill would require the plan to be filed with the Department of Water Resources, and would require the department to annually prepare and submit to the Legislature a report summarizing the status of the plans. The bill would require each supplier to periodically review its plan in accordance with prescribed requirements, would specify requirements for actions or proceedings arising under the bill, and would specify related matters.

The bill would make legislative findings and declarations in this connection.

The provisions of the bill would remain in effect only until January 1, 1991.

(2) Article XIII B of the California Constitution and Sections 2231 and 2234 of the Revenue and Taxation Code require the state to reimburse local agencies and school districts for certain costs mandated by the state. Other provisions require the Department of Finance to review statutes disclaiming these costs and provide, in certain cases, for making claims to the State Board of Control for reimbursement.

This bill would impose a state-mandated local program as its requirements would be applicable to local public agencies.

However, the bill would provide that no appropriation is made and no reimbursement is required by this act for a specified reason.

The people of the State of California do enact as follows:

SECTION 1. Part 2.6 (commencing with Section 10610) is added to Division 6 of the Water Code, to read:

PART 2.6. URBAN WATER MANAGEMENT PLANNING

CHAPTER 1. GENERAL DECLARATION AND POLICY

10610. This part shall be known and may be cited as the "Urban Water Management Planning Act."

10610.2. The Legislature finds and declares as follows:

(a) The waters of the state are a limited and renewable resource subject to ever increasing demands.

(b) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

10610.4. The Legislature finds and declares that it is the policy of the state as follows:

(a) The conservation and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.

(b) The conservation and efficient use of urban water supplies shall be a guiding criterion in public decisions.

(c) Urban water suppliers shall be required to develop water management plans to achieve conservation and efficient use.

CHAPTER 2. DEFINITIONS

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

10611.5. "Conservation" means those measures that limit the amount of water used only to that which is reasonably necessary for the beneficial use to be served.

10612. "Customer" means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

10613. "Efficient use" means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

10614. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate reasonable and practical efficient uses and conservation activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

10616. "Public agency" means any board, commission, county, city and county, city, regional agency, district, or other public entity.

10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 7 (commencing with Section 4010) of Part 1 of Division 5 of the Health and Safety Code.

CHAPTER 3. URBAN WATER MANAGEMENT PLANS

Article 1. General Provisions

10620. (a) Every urban water supplier serving water directly to customers shall, not later than December 31, 1985, prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(b) Every person that becomes an urban water supplier after December 31, 1984, shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water to customers may adopt an urban water management plan or participate in areawide, regional, watershed, or basinwide urban water management planning; provided, however, an urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

10621. Each urban water supplier shall periodically review its plan at least once every five years. After the review, it shall make any amendments or changes to its plan which are indicated by the review. Amendments or changes in its plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

Article 2. Contents of Plans

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

10631. A plan shall include all of the following elements:

(a) Contain an estimate of past, current, and projected water use and, to the extent records are available, segregate those uses between residential, industrial, commercial, and governmental uses.

(b) Identify conservation measures currently adopted and being practiced.

(c) Describe alternative conservation measures, if any, which would improve the efficiency of water use with an evaluation of their costs and their environmental and other significant impacts.

(d) Provide a schedule of implementation for proposed actions as indicated by the plan.

(e) Describe the frequency and magnitude of supply deficiencies, including conditions of drought and emergency, and the ability to meet short-term deficiencies.

10632. In addition to the elements required pursuant to Section 10631, a plan projecting a future use which indicates a need for expanded or additional water supplies shall contain an evaluation of the following:

(a) Waste water reclamation.

(b) Exchanges or transfer of water on a short-term or long-term basis.

(c) Management of water system pressures and peak demands.

(d) Incentives to alter water use practices, including fixture and appliance retrofit programs.

(e) Public information and educational programs to promote wise use and eliminate waste.

(f) Changes in pricing, rate structures, and regulations.

10633. The plan shall contain an evaluation of the alternative water management practices identified in Sections 10631 and 10632, taking into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.

Evaluation of the elements in Section 10632 shall include a comparison of the estimated cost of alternative water management practices with the incremental costs of expanded or additional water supplies, and in the course of the evaluation first consideration shall be given to water management practices, or combination of practices, which offer lower incremental costs than expanded or additional water supplies, considering all the preceding evaluation factors.

Article 3. Adoption and Implementation of Plans

10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630).

The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

10641. (a) An urban water supplier required to prepare a plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water conservation and management methods and techniques.

(b) In order to assist urban water suppliers in obtaining needed expertise as provided for in subdivision (a), the department, upon request of an urban water supplier, shall provide the supplier with a list of persons or agencies having expertise or experience in the development of water management plans.

10642. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

10643. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

10644. An urban water supplier shall file with the department a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be filed with the department within 30 days after adoption.

The department shall annually prepare and submit to the Legislature a report summarizing the status of the plans adopted pursuant to this part.

CHAPTER 4. MISCELLANEOUS PROVISIONS

10650. Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part, or within 18 months after commencement of urban water service by a supplier commencing that service after January 1, 1984.

(b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans prepared and adopted under this part. Nothing in this part shall be interpreted as exempting projects for implementation of the plan or for expanded or additional water supplies from the provisions of the California Environmental Quality Act.

10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board in obtaining that information. The requirements of this part shall be satisfied by any water conservation plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing water management or conservation plan which includes the contents of a plan required under this part.

10654. All costs incurred by an urban water supplier in developing or implementing its plan shall be borne by it unless otherwise provided for by statute.

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

10656. This part shall remain in effect only until January 1, 1991, and as of that date is repealed, unless a later enacted statute, which is chaptered before January 1, 1991, deletes or extends that date.

SEC. 2. No appropriation is made and no reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution or Section 2231 or 2234 of the Revenue and Taxation Code because the local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act.

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AMENDED IN SENATE APRIL 30, 1990
AMENDED IN ASSEMBLY MARCH 20, 1990
AMENDED IN ASSEMBLY MARCH 8, 1990

CALIFORNIA LEGISLATURE—1989-90 REGULAR SESSION

ASSEMBLY BILL No. 2661

Introduced by Assembly Member Klehs
(Coauthors: Assembly Members Bane, Bates, Willie Brown, Burton, Calderon, Campbell, Cortese, Costa, Eastin, Filante, Harris, Hayden, *Kelley,* Peace, Speier, and Vasconcellos)
(Coauthors: Senators Boatwright and Presley)

January 23, 1990

An act to amend Sections 10631, 10632, and 10644 of, to add Section 10645 to, and to repeal Section 10656 of, the Water Code, relating to water.

LEGISLATIVE COUNSEL'S DIGEST

AB 2661, as amended, Klehs. Water management planning.

(1) Under the Urban Water Management Planning Act, which is to remain in effect only until January 1, 1991, every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually is required to prepare and adopt, in accordance with prescribed requirements, an urban water management plan containing prescribed elements. The plan is required to be filed with the Department of Water Resources, and the department is required to annually prepare and submit to the Legislature a report summarizing the status of the plans. Each supplier is required to *periodically review its plan in accordance with prescribed* requirements.

This bill would delete the January 1, 1991, termination date, thereby imposing a state-mandated local program since the requirements of the act are specifically applicable to local public agency water suppliers. The bill would revise the required elements of the plan and would make related changes. The bill would require the water supplier and the department to make the plan available for public review within 30 days after filing of the plan with the department. The bill would require the department in its annual report to highlight the outstanding elements of individual plans and *would also* require the department to prepare reports and provide data for specified legislative hearings. *The bill would require the department to provide a copy of the report to each supplier which has filed its plan with the department.*

(2) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

Vote: majority. Appropriation: no. Fiscal committee: yes. State-mandated local program: yes.

The people of the State of California do enact as follows:

SECTION 1. Section 10631 of the Water Code is amended to read:

10631. ~~(a)~~ A plan shall include all of the following elements:

~~(1)~~

(a) Contain an estimate of past, current, and projected water use and, to the extent records are available, segregate those uses between residential, industrial, commercial, and governmental uses.

~~(2)~~

(b) Identify conservation measures currently adopted and being practiced.

~~(3)~~

(c) Describe alternative conservation measures,

ıcluding, but not limited to, consumer education, ıetering, water saving fixtures and appliances, lawn and arden irrigation techniques, and low water use ındscaping, which would improve the efficiency of ater use with an evaluation of their costs and their ıvironmental and other significant impacts.

~~(4)~~

(d) Provide a schedule of implementation for ·oposed actions as indicated by the plan.

~~(5)~~

(e) Describe the frequency and magnitude of supply ~~:ficiencies, based on historic hydrology and future ·ojected conditions, including deficiencies in time of~~ *:ficiencies, based on available historic data and future ·ojected conditions comparing water supply and :mand, including a description of deficiencies in time of* ·ought and emergency, and the ability to meet :ficiencies.

~~(6) Include a data collection system to assess the~~

(f) To the extent feasible, describe the method which ll be used to evaluate the effectiveness of each nservation measure implemented under the plan.

~~(b) A plan, including all of the elements required by bdivision (a) and a description of the steps which~~

(g) Describe the steps which would be necessary to ıplement any proposed actions ~~within the plan, shall be opted by the governing body of an urban water pplier,~~ *in the plan.*

SEC. 2. Section 10632 of the Water Code is amended read:

10632. In addition to the elements required pursuant Section 10631, a plan projecting a future use which dicates a need for expanded or additional water pplies shall contain an evaluation of the following ernatives:

(a) Waste water reclamation.

(b) Exchanges or transfer of water on a short-term or ıg-term basis.

(c) Management of water system pressures and peak :mands.

(d) Issues relevant to meter retrofitting for all uses.

(e) Incentives to alter water use practices, including fixture and appliance retrofit programs.

(f) Public information and educational programs to promote wise use and eliminate waste.

(g) Changes in pricing, rate structures, and regulations.

SEC. 3. Section 10644 of the Water Code is amended to read:

10644. An urban water supplier shall file with the department a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be filed with the department within 30 days after adoption.

Plans filed under this section shall describe the basis for the decision of the urban water supplier to add, change, or retain conservation measures.

The department shall annually prepare and submit to the Legislature a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall highlight the outstanding elements of individual plans. *The department shall provide a copy of the report to each urban water supplier which has filed its plan with the department.* The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

SEC. 4. Section 10645 is added to the Water Code, to read:

10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

SEC. 5. Section 10656 of the Water Code is repealed.

SEC. 6. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act. Notwithstanding Section 17580 of the Government Code, unless otherwise specified in this act, the provisions of this act shall become operative on the same date that the act takes effect pursuant to the California Constitution.

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APPENDIX 2

DISTRICT CONTACT PEOPLE

LEO F. COURNOYER
Water Supply Manager

ROGER B. JAMES
Operations and Water Quality Manager

THEODORA MORSE
Public Information Officer

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118
Telephone
(408) 265-2600

APPENDIX 3
BOARD RESOLUTION

RESOLUTION NO. 90–73
PASSED AND ADOPTED
December 18,1990

RESOLUTION NO. 90-73

ADOPTING AND AUTHORIZING THE FILING AND IMPLEMENTATION OF THE SANTA CLARA VALLEY WATER DISTRICT URBAN WATER MANAGEMENT PLAN

WHEREAS, the California Legislature enacted Water Code Sections 10610 et seq. during the 1983-1984 Regular Session of the California Legislature (AB 797), known as the Urban Water Management Planning Act (the "Act"), which mandates that every urban supplier of water providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the Act as amended from time to time states that an urban water supplier indirectly providing water to customers **may** adopt an Urban Water Management Plan; and

WHEREAS, the Act originally required that said Plan be adopted by December 31, 1985, after public review and hearing, and filed with the California Department of Water Resources within thirty days of adoption; and

WHEREAS, the Santa Clara Valley Water District did prepare and file said Plan with the California Department of Water Resources in December 1985; and

WHEREAS, the Act as amended requires that said Plan be periodically reviewed at least once every five years, and that the urban water supplier shall make any amendments or changes to its plan which are indicated by the review; and

WHEREAS, the District indirectly provides water to over 1,000,000 people in Santa Clara County; and

WHEREAS, the District has prepared and circulated for public review an updated Draft Urban Water Management Plan in compliance with the requirements of the Act as amended; and

WHEREAS, a duly noticed public hearing regarding said Draft Plan was held by the District Board of Directors on December 18, 1990;

NOW, THEREFORE, BE IT RESOLVED by the Santa Clara Valley Water District Board of Directors as follows:

1. The Urban Water Management Plan be finalized as directed, adopted and ordered filed with Clerk of the Board;

2. The General Manager is hereby authorized and directed to file the final Plan with the California Department of Water Resources within 30 days after this date, in accordance with the Act as amended;

3. The General Manager is hereby authorized and directed to implement the Water Conservation Programs as detailed in the final Urban Water Management Plan, to carry out effective and equitable water conservation programs.

PASSED AND ADOPTED THIS 18th day of December 1990, by the following vote:

AYES: Directors J. DONOHUE P. T. FERRARO R. W. GROSS J. JUDGE J. J. LENIHAN J. PANDIT S. SANCHEZ

NOES: Directors NONE

ABSENT: Directors [illegible]

SANTA CLARA VALLEY WATER DISTRICT

By: Sig Sanchez
Chairman of the Board of Directors

ATTEST: SUSAN A. PINO

Clerk of the Board of Directors

APPENDIX 4

ORDINANCE 89-1

ORDINANCE NO. 89-1

PROVIDING FOR THE REGULATION OF GROUNDWATER EXTRACTION WITHIN SANTA CLARA VALLEY WATER DISTRICT

The Board of Directors of Santa Clara Valley Water District do hereby enact as follows:

ARTICLE I

Sec. 1. Pursuant to grant of authority by the Santa Clara Valley Water District Act of the State of California, the Board of Directors, in order to conserve water for present and future use within the District, to prevent damaging diminution in the subterranean supply of water useful and of common benefit to the lands and people of the District, and in particular to prevent the occurrence of land surface subsidence and other permanently injurious consequences of groundwater overdraft in periods of drought, the following rules shall be in force from and after the effective date of this Ordinance.

ARTICLE II

Sec. 1. To establish a program of regulation of groundwater extraction, the Board of Directors shall adopt a resolution specifying its intention to undertake such a program, describing the same with reasonable particularity, together with the perceived ground or grounds requiring its imposition, and fixing a time and place for public hearing thereof. Notice shall be given by publication of said resolution pursuant to Section 6061 of the Government Code in a newspaper of general circulation in the District. The publication of said notice shall be at least seven days before said hearing. Said resolution shall designate at least one public place where a copy or copies of the program of regulation may be seen by any interested person. The copy or copies shall be so available at least one week prior to said hearing.

ARTICLE III

Sec. 1. At the time and place fixed for said hearing or at any time to which said hearing may be continued, the Board must receive and make a record of substantial evidence tending to show that the underlying source of groundwater of the District is immediately endangered and that regulation in the form, manner and degree and for the period proposed is necessary to avoid permanent damage thereto in the form of diminution, contamination, pollution or compaction of the soils of said underlying source of groundwater.

Sec. 2. At said hearing, or at any time to which said hearing may be continued, the Board shall consider all written and oral objections to the proposed program. Upon the conclusion of the hearing and upon the basis thereof and not otherwise, the Board may abandon the proposed program or adopt the same.

ARTICLE IV

Sec. 1. A program of regulation of groundwater extraction shall not be adopted except upon a formal finding by the Board that a source of groundwater of the inhabitants of the District is in immediate danger as aforesaid and such a program shall not extend beyond five (5) years from its effective date unless reenacted upon the same proceedings, including notice and public hearing, as specified herein. Such a program may include authority to require a license to (a) use all water wells and/or (b) construct any new water well; to require reporting to the District of water well production; and to control and suspend groundwater extractions at a designated point or points to the extent reasonably calculated and appropriate to meet or reduce the danger so found.

ARTICLE V

Sec. 1. Any program adopted pursuant to this Ordinance is effective upon adoption. Within ten days after its adoption, the program shall be published pursuant to Section 6061 of the Government Code in full in a newspaper of general circulation which is printed, published and circulated in the District.

ARTICLE VI

Sec. 1. From and after the publication of a program pursuant to this Ordinance, violation of a requirement of the program of regulation adopted pursuant to this Ordinance is a misdemeanor pursuant to Section 9 of the Santa Clara Valley Water District Act.

PASSED AND ADOPTED by the Board of Directors of Santa Clara Valley Water District on February 21, 1989, by the following vote:

AYES: Directors ~~J. DONOHUE~~ P. T. FERRARO R. W. GROSS J. JUDGE J. J. LENIHAN J. PANDIT ~~S. SANCHEZ~~

NOES: Directors S.Sanchez

ABSENT: Directors J.Donohue

SANTA CLARA VALLEY WATER DISTRICT

By:

Chairman of the Board of Directors

ATTEST: ~~SUSAN A. PINO~~

Doris M Marovich

Clerk of the Board of Directors
ProTem

APPENDIX 5

REFERENCES

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APPENDIX 6

PUBLIC COMMENT AND RESPONSE

As of December 31, 1990, no public comment has been received.

The Board of Directors extended the deadline for public comment to January 18, 1991, and directed that any such comment and the District's response be published as an addendum to the reported and filed with the report.